SHARP SERVICE MANUAL

CODE: 00ZERA310USME

ER-A310

ER-A330

ELECTRONIC CASH REGISTER

MODEL ER-A310 ER-A330

SRV Key : LKGIM7113RCZZ
PRINTER : ER-A310 : CR-510
ER-A330 : UCR-812A
(For "U" & "A" version)

CONTENTS

CHAPTER 1. SPECIFICATIONS 1
CHAPTER 2. OPTIONS 6
CHAPTER 3. SRV. RESET AND MASTER RESET 6
CHAPTER 4. HARDWARE DESCRIPTION 7
CHAPTER 5. TEST FUNCTION 16
CHAPTER 6. CIRCUIT DIAGRAM & PWB LAYOUT 20

PARTS GUIDE

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

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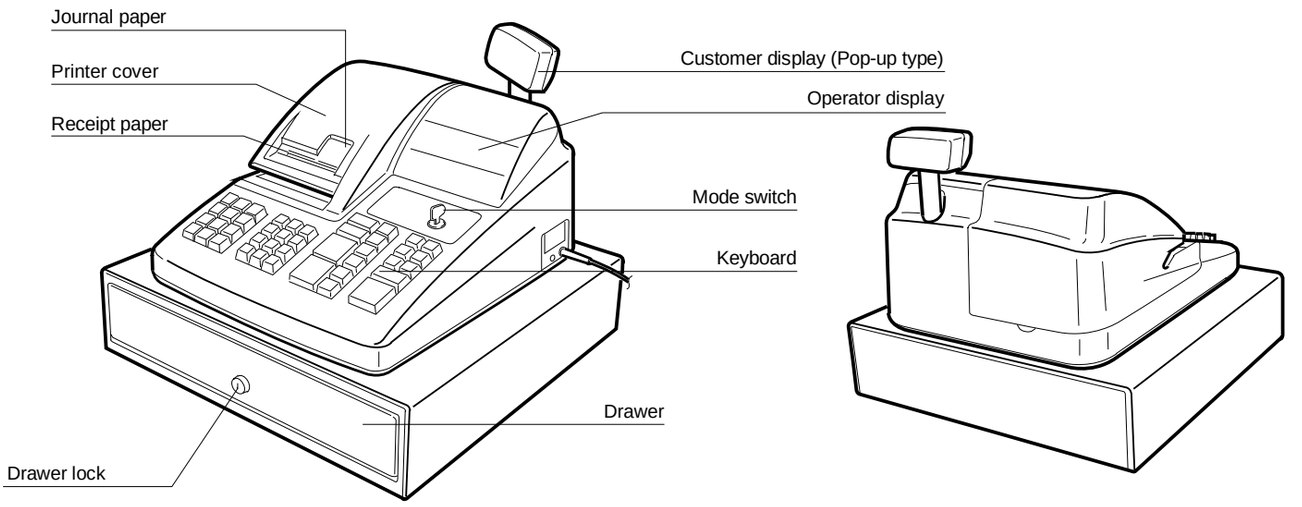
The contents are subject to change without notice.

CHAPTER 1. SPECIFICATIONS

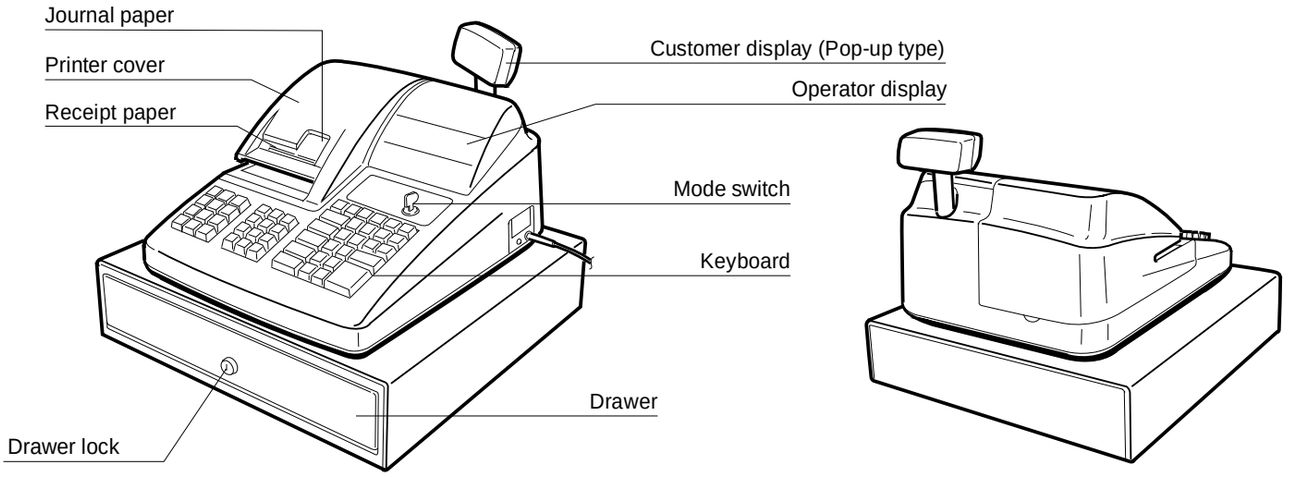
1. Appearance/Rating

1) Appearance

① ER-A310



② ER-A330



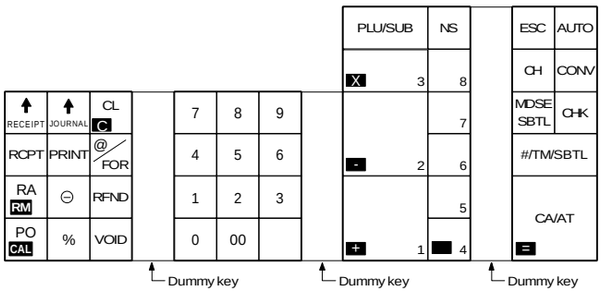
2) Rating

	ER-A310	ER-A330
Power source	120V AC ± 10%, 50/60 Hz	
Power consumption	Stand-by: 10W Operating: 31W (Max.)	Stand-by: 10W Operating: 38W (Max.)
Operating temperature	32˚F to 104˚F (0˚C to 40˚C)	
Operating humidity	10% to 90% (RH)	
Physical dimensions, including the drawer	420 (W) × 423 (D) × 304 (H) mm (16.5 (W) × 16.7 (D) × 12.0 (H) in.)	420 (W) × 423 (D) × 314 (H) mm (16.5 (W) × 16.7 (D) × 12.4 (H) in.)
Weight	12.5 kg (27.6 lbs.)	13.5 kg (30.0 lbs.)

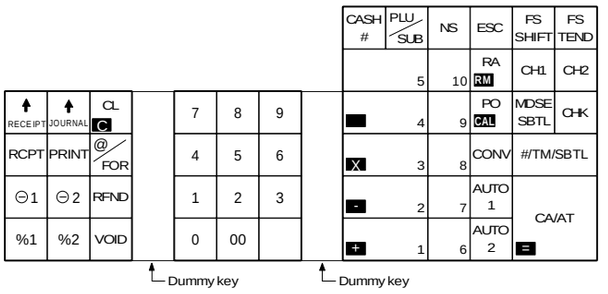
2. Keyboard

1) Standard keyboard layout

① ER-A310



② ER-A330



2) Key top name

① Standard key top

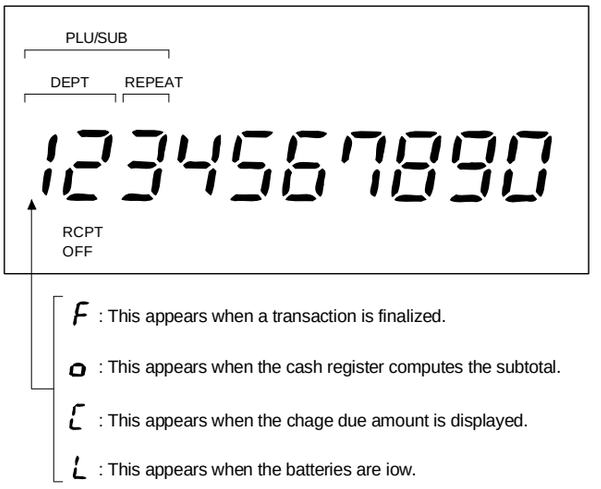
KEY TOP	DESCRIPTION	ER-A310	ER-A330
↑ RECEIPT	Receipt paper feed key	○	○
↑ JOURNAL	Journal paper feed key	○	○
0~9,00	Numeric keys	○	○
.	Decimal point key	○	○
@/FOR	Multiplication key	○	○
CL/C	Clear key	○	○
PRINT	Validation print key	○	○
Dept.1/+	Department 1/Plus key	○	○
Dept.2/–	Department 2/Minus key	○	○
Dept.3/×	Department 3/ Multiplication key	○	○
Dept.4/÷	Department 4/Division key	○	○
Dept.5~8	Department 5~8 keys	○	×
Dept.5~10	Department 5~10 keys	×	○
PLU/SUB	PLU/Subdepartment key	○	○
ESC	Error escape key	○	○
CASH#	Cashier number entry key	×	○
RCPT	Receipt print key	○	○
⊖	Discount key	○	×
⊖1, 2	Discount 1 and 2 keys	×	○
AUTO	Automatic sequencing key	○	×
AUTO1, 2	Automatic sequencing 1 and 2 keys	×	○
%	Percent key	○	×
%1, 2	Percent 1 and 2 keys	×	○
NS	No-sale key	○	○
RA/RM	Received on account/ Recall memory key	○	○
PO/CAL	Paid out/ Calculation mode key	○	○
RFND	Refund key	○	○
VOID	Void key	○	○
CH	Charge key	○	×
CH1, 2	Charge 1 and 2 keys	×	○
CHK	Check key	○	○
CONV	Conversion key	○	○
MDSE SBTL	Merchandise subtotal key	○	○
#/TM/SBTL	Non-add code/Time display/ Subtotal key	○	○
CA/AT /=	Cash/Amount tendered/ Equals key	○	○
FS SHIFT	Food stamp shift key	×	○
FS TEND	Food stamp tender key	×	○

② Optional key top

KEY TOP	DESCRIPTION	ER-A310	ER-A330
Dept. 9~30	Department 9~30 keys	○	×
Dept. 11~50	Department 11~50 keys	×	○
DEPT#	Department number entry key	○	○
TAX1 SHIFT~TAX4 SHIFT	Tax1 ~ Tax4 shift keys	○	○
TAX	Manual tax key	○	○
AUTO2	Automatic sequencing 2 key	○	×
AUTO3, 4	Automatic sequencing 3 and 4 keys	×	○
CONV2~4	Conversion 2~4 keys	○	○
CA2	Cash total 2 key	○	○
CH2	Charge 2 key	○	×
⊖2	Discount 2 key	○	×
%2	Percent 2 key	○	×

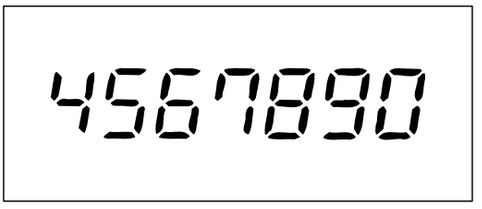
4. Display

1) Operator display



DISPLAY DEVICE	LED
NUMBER OF LINE	1 line
NUMBER OF POSITIONS	10 positions
COLOR OF DISPLAY	Green
CHARACTER SIZE	14.2mm (H) × 8.0mm (H)

2) Customer display (Pop-up type)



DISPLAY DEVICE	LED
NUMBER OF LINE	1 line
NUMBER OF POSITIONS	7 positions
COLOR OF DISPLAY	Green
CHARACTER SIZE	14.2mm (H) × 8.0mm (H)

3) Lamps

	DISPLAY POSITION	DESCRIPTION
AMOUNT	1 ~ 8	
MINUS SIGN	4 ~ 10	- : Floating
ERROR	10	E
PGM MODE	10	P
CA/AT NS CH CHK	10	F : Lights up when a registration is finalized by depressing CA/AT, NS, CH or CHK key
SUBTOTAL/ SHORT TENDER	10	o
CHANGE	10	C : Lights up whenever the change due amount appears in the display.
DEPARTMENT	9 ~ 10	No zero-suppressed.
PLU	8 ~ 10	No zero-suppressed.
REPEAT	8	Endless count, starting from 2.
DECIMAL POINT	3 ~ 1	TAB
LOW BATTERY	10	L : Light up when the voltage of the battery for memory retention is lower than the regulated voltage. (The voltage is checked when "POWER ON" or "Batteries are exchanged".)
RECEIPT OFF	8	—
CASHIER No.	2 ~ 3	– ○○ – : 01 ~ 06 code entry
VALIDATION	10	V : Light up when the validation printing is compulsory.
CONVERSION or CALC. MODE	10	c

5. Printer

1) Printer specifications

<table>
<tr><th>ITEMS</th><th>ER-A310</th><th>ER-A330</th></tr>
<tr><td>Model name</td><td>CR-510</td><td>UCR-812A</td></tr>
<tr><td>No. of station</td><td>2 (Receipt/Journal)</td><td>2 (Receipt/Journal)</td></tr>
<tr><td>Printing system</td><td>Inner hammer, rubber character selection type</td><td>Print wheel selective type</td></tr>
<tr><td>Printing capacity</td><td>Receipt : Max. 12 chr.
Journal : Max. 12 chr.
Validation : Max. 24 chr./1 line</td><td>Receipt : Max. 10 chr.
Journal : Max. 10 chr.
Validation : Max. 20 chr./1 line</td></tr>
<tr><td>Character size</td><td>1.8mm (W) × 2.7mm (H)</td><td>Figure : 1.7mm (W) × 3.2mm (H)
Symbol : 2.4mm (W) × 3.2mm (H)</td></tr>
<tr><td>Print pitch</td><td>Column distance : 2.8mm
Row distance : 4.3mm</td><td>Column distance : 3.35mm for between 1st and 2nd column 3.0mm for after 3rd column
Row distance : 5.1mm</td></tr>
<tr><td>Print speed</td><td>Approx. 3.0 lines/sec.</td><td>Approx. 2.6 lines/sec.</td></tr>
<tr><td>Paper feed speed</td><td>Approx. 29 lines/sec. at receipt issued.</td><td>Approx. 18 lines/sec. at receipt issued.</td></tr>
<tr><td>Reliability</td><td>MCBF 2.5 million lines</td><td>MCBF 2 million lines</td></tr>
<tr><td>Validation form sensor</td><td>No</td><td>No</td></tr>
<tr><td>Near end sensor</td><td>Journal side: No
Receipt side: No</td><td>Journal side: No
Receipt side: No</td></tr>
<tr><td>Cutter</td><td>Manual</td><td>Manual</td></tr>
<tr><td>Print wheel layout</td><td>Parts code: 00BM755001010
<table>
<tr><th>12</th><th>11</th><th>10</th><th>9</th><th>8</th><th>7</th><th>6</th><th>5</th><th>4</th><th>3</th><th>2</th><th>1</th></tr>
<tr><td>PL</td><td></td><td>GT</td><td></td><td>–</td><td></td><td>–</td><td></td><td>–</td><td></td><td>CA</td><td></td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>CD</td><td>CH</td><td>½</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>P</td><td>CK</td><td>1</td></tr>
<tr><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>X</td><td>CR</td><td>2</td></tr>
<tr><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>Z</td><td>EX</td><td>3</td></tr>
<tr><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>#</td><td>TX</td><td>4</td></tr>
<tr><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>RF</td><td>FS</td><td>5</td></tr>
<tr><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>VD</td><td>%</td><td>6</td></tr>
<tr><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>TR</td><td>⊖</td><td>7</td></tr>
<tr><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>Q</td><td>RA</td><td>CG</td></tr>
<tr><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>@</td><td>PO</td><td>TD</td></tr>
<tr><td>★</td><td>★</td><td>★</td><td>★</td><td>★</td><td>★</td><td>★</td><td>★</td><td>★</td><td>+</td><td>NS</td><td>TL</td></tr>
<tr><td>–</td><td>–</td><td>–</td><td>–</td><td>.</td><td>.</td><td>.</td><td>.</td><td>No</td><td>–</td><td>∗</td><td>ST</td></tr>
</table></td><td>Parts code: 00BM712002300
<table>
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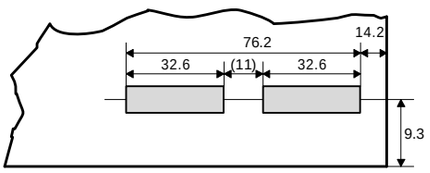
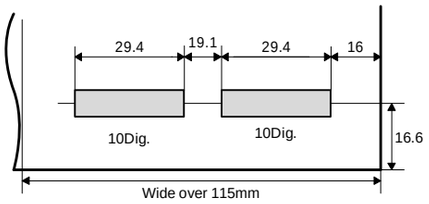
<tr><td>PL</td><td>Z</td><td>TX</td><td>.</td><td>.</td><td>.</td><td>.</td><td>GT</td><td>CA</td><td>@</td></tr>
<tr><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>–</td><td>#</td><td>CK</td><td>Q</td></tr>
<tr><td>★</td><td>★</td><td>★</td><td>★</td><td>★</td><td>★</td><td>★</td><td>%</td><td>CH</td><td>CG</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>RA</td><td>TD</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>PO</td><td>1</td></tr>
<tr><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>VD</td><td>2</td></tr>
<tr><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>NS</td><td>3</td></tr>
<tr><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>TX</td><td>4</td></tr>
<tr><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>FS</td><td>5</td></tr>
<tr><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>⊖</td><td>6</td></tr>
<tr><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>7</td><td>X</td><td>½</td></tr>
<tr><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>EX</td><td>ST</td></tr>
<tr><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>9</td><td>RF</td><td>TL</td></tr>
</table></td></tr>
</table>

2) Roll paper

<table>
<tr><td>Parts code</td><td>DPAPR1006CSZZ</td></tr>
<tr><td>Dimension</td><td>44.5±0.5mm in width
Max. 83mm in diameter</td></tr>
<tr><td>Paper quality</td><td>Journal/Receipt
Fine quality paper
Paper thickness : 0.06 to 0.09 mm
Paper weight : 52.3 to 64g/m^2
Validation form
Normal paper only
Thickness : 0.09 to 0.14 mm
Size : 110mm or more, 210mm or under (W) × 70mm or more (H)</td></tr>
</table>

3) Validation paper

	ER-A310	ER-A330
Paper quality	Normal paper only Thickness : 0.09 to 0.14 mm Size : 110 mm or more, 210 mm or under (W) × 70 mm or more (H)	Normal paper and pressure sensitive paper only Thickness : 0.07 to 0.14 mm Size : 115 mm or more (W) × 70 mm or more (H)
Printing area		

4) Inking

	ER-A310	ER-A330
Parts code	NROLR6652RCZZ	NROLR6638RCZZ
Ink supply system	Ink roller	Ink roller
Form	Roller	Roller
Specification	Material-rubber	Material-rubber
Roller life	Approx. 0.4 million lines	Approx. 0.6 million lines
Print color	Purple	Purple

5) Logo stamp

	ER-A310	ER-A330
Material	Porous rubber	Porous rubber
Size	30mm (W) × 20mm (H)	30mm (W) × 20mm (H)
Color	Purple	Purple
Parts code for ink	UINK1001CCZZ	UINK1001CCZZ

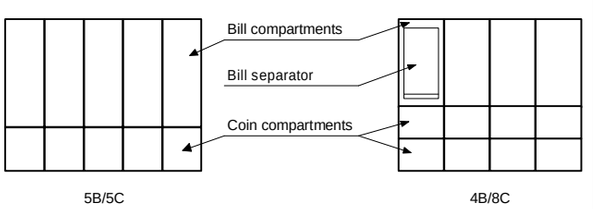
6. Drawer

1) Drawer box and drawer

Model name	SK423
Size	420(W) × 423(D) × 112(H) mm
Color	Light olive gray
Material	Metal
Bell	—
Release lever	Standard equipment; Situated at the bottom
Drawer open sensor	Standard equipment

2) Money case

	For "U" version	For "A" version
Separation from the drawer	Allowed	Allowed
Separation of the coin compartments from the money case	Disallowed	Disallowed
Bill separator	—	Yes
Number of compartments	5B/5C	4B/8C



3) Lock

Location of the lock	Front	
Method of locking and unlocking	Locking	: Insert the drawer lock key into the lock and turn it 90 degrees counterclockwise.
	Unlocking	: Insert the drawer lock key into the lock and turn it 90 degrees clockwise.
Key No.	SK1-1	

7. Memory back up

For memory back up, the dry battery ULM-3 (3 pieces) is needed.

1. Memory holding time: Approximate 1 year after NEW dry batteries are inserted.
2. Battery exchange method: When the low battery symbol "L" lights up, batteries (3 pieces) exchange by the following method, within 2 days.
   1) Power on the ECR.
   2) Turn the MODE SW to "OP X/Z" mode.
   3) Release the OLD dry batteries (3 pieces).
   4) Insert the NEW dry batteries (3 pieces).
   5) Confirm the low battery symbol "L" lights off.

CHAPTER 2. OPTIONS

1. Sales options

No.	NAME	MODEL	DESCRIPTIONS
1	REMOTE DRAWER	ER-04DW	5B/5C
2	COIN CASE	ER-55C2	5B/5C
3	KEY TOP KIT	ER-11KT7	1 × 1 key top
		ER-12KT7	1 × 2 key top
		ER-22KT7	2 × 2 key top
		ER-11DK7	1 × 1 dummy key
		ER-51DK7	5 × 1 dummy key

2. Service options

No.	NAME	PARTS CODE	PRICE RANK	DESCRIPTIONS
1	SRV KEY	LKGiM7113RCZZ	AK	
2	MODE KEYGRIP COVER	LKGiM7126RCZZ	AL	OP key only
3	DRIP-PROOF KEYBOARD COVER	GCOVH7126BHZZ	BE	
4	SHIELD PLATE KIT	DKiT−8666BHZZ	BL	Only for ER-A330

3. Supplies

No.	NAME	PARTS CODE	PRICE RANK	DESCRIPTIONS
1	ROLL PAPER	DPAPR1006CSZZ	AR	
2	INK ROLLER (ER-A310)	NROLR6652RCZZ	AZ	
3	INK ROLLER (ER-A330)	NROLR6638RCZZ	AY	
4	INK FOR STAMP	UiNK−1001CCZZ	AK	

CHAPTER 3. SRV RESET AND MASTER RESET

The SRV key is used for operating in the SRV mode.

1. SRV. reset (Program Loop Reset)

Used to return the machine back to its operational state after a lock-up has occurred.

Procedure

- Method 1

1) Turn off the AC switch.
2) Set the mode switch to (SRV′) position.
3) Turn on the AC switch.
4) Turn to (SRV) position from (SRV′) position.

2. Master reset (All memory clear)

There are two possible methods to perform a master reset.

- MRS-1

Used to clear all memory contents and return machine back to its initial settings. return keyboard back to default. for default keyboard layout.

Procedure-1 (with SRV key)

1) Unplug the AC cord from the wall outlet.
2) Set the MODE switch to the (SRV′) position.
3) Plug in the AC cord to the wall outlet.
4) While holding down JOURNAL FEED key, turn to (SRV) position from (SRV′) position.

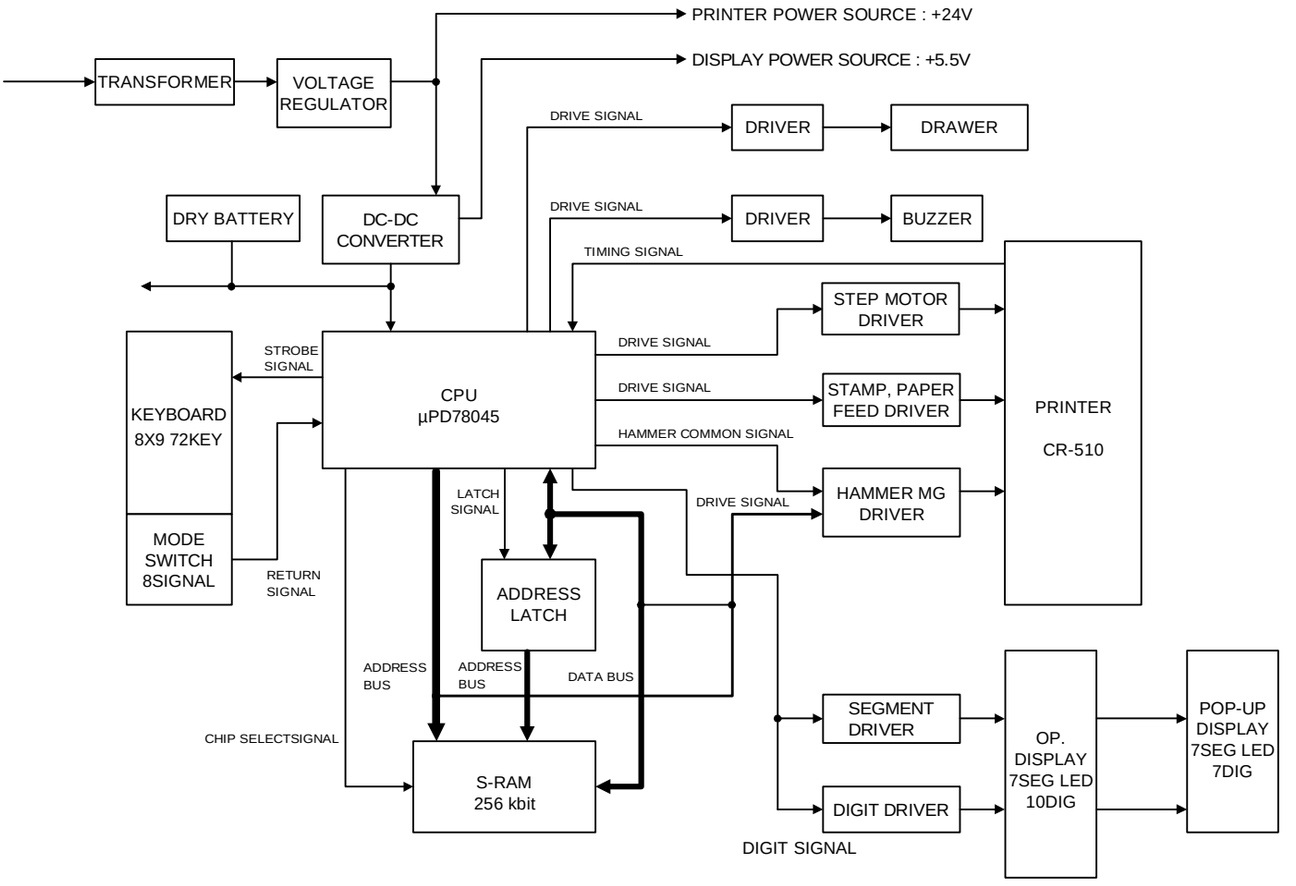
Procedure-2 (without SRV key)

1) Turn the mode switch to the (REG) position.
2) Ensure the batteries are not installed in the battery compartment and insert the plug into the outlet.
3) The right most decimal point will blink for a few seconds.
4) The register will sound three beeps.
5) The register will display " L 0.00 ."

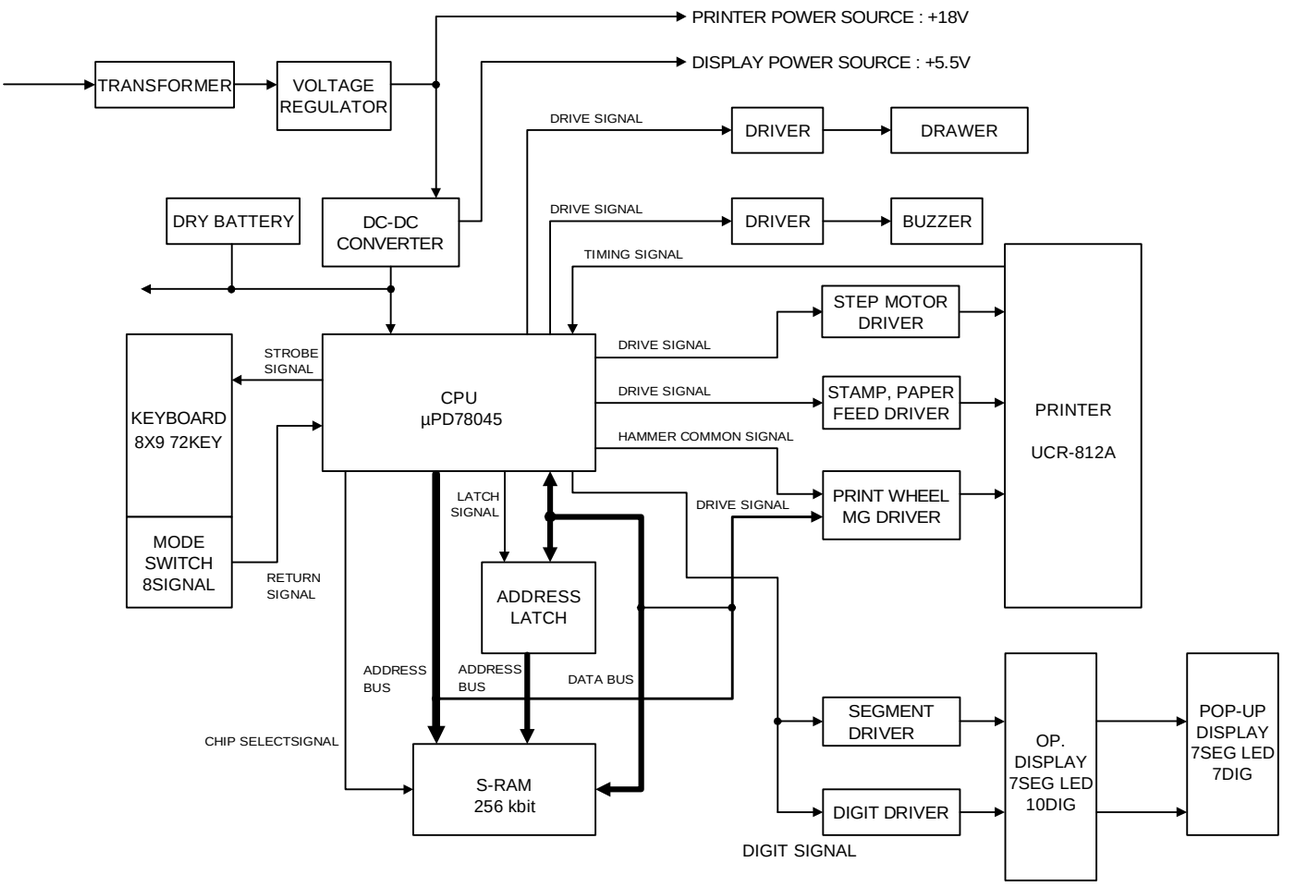
CHAPTER 4. HARDWARE DESCRIPTION

1. Block diagram

1) ER-A310



2) ER-A330

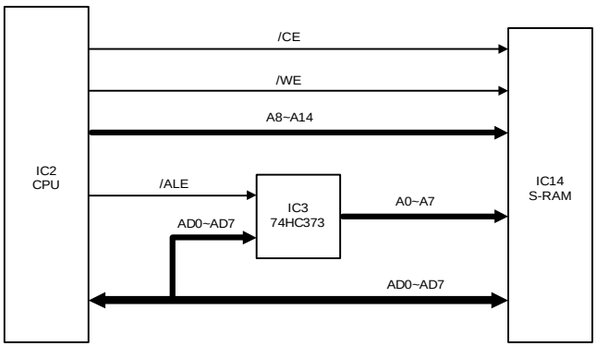

PRINTER POWER SOURCE : +18V
DISPLAY POWER SOURCE : +5.5V
TRANSFORMER
VOLTAGE REGULATOR
DRIVE SIGNAL
DRIVER
DRAWER
DRY BATTERY
DC-DC CONVERTER
DRIVE SIGNAL
DRIVER
BUZZER
TIMING SIGNAL
STEP MOTOR DRIVER
STROBE SIGNAL
DRIVE SIGNAL
KEYBOARD 8X9 72KEY
CPU µPD78045
DRIVE SIGNAL
STAMP, PAPER FEED DRIVER
PRINTER
UCR-812A
HAMMER COMMON SIGNAL
LATCH SIGNAL
DRIVE SIGNAL
PRINT WHEEL MG DRIVER
MODE SWITCH 8SIGNAL
RETURN SIGNAL
ADDRESS LATCH
ADDRESS BUS
ADDRESS BUS
DATA BUS
SEGMENT DRIVER
OP. DISPLAY 7SEG LED 10DIG
POP-UP DISPLAY 7SEG LED 7DIG
CHIP SELECTSIGNAL
S-RAM 256 kbit
DIGIT DRIVER
DIGIT SIGNAL

2. CPU (UPD78045F) pin configuration

No.	PIN NAME	ER-A310		ER-A330		I/O	ACTIVE
		SIGNAL NAME	DESCRIPTION	SIGNAL NAME	DESCRIPTION		
1	P94	DIG7	Display digit 7	DIG7	Display digit 7	O	H
2	P93	DIG6	Display digit 6	DIG6	Display digit 6	O	H
3	P92	DIG5	Display digit 5	DIG5	Display digit 5	O	H
4	P91	DIG4	Display digit 4	DIG4	Display digit 4	O	H
5	P90	DIG3	Display digit 3	DIG3	Display digit 3	O	H
6	P81	DIG2	Display digit 2	DIG2	Display digit 2	O	H
7	P80	DIG1	Display digit 1	DIG1	Display digit 1	O	H
8	VDD	VDD	+5V	VDD	+5V		
9	P27	AD7	RAM Address & Data bus 7	AD7	RAM Address & Data bus 7 Printer magnet 8	I/O	H
10	P26	AD6	RAM Address & Data bus 6	AD6	RAM Address & Data bus 6 Printer magnet 7	I/O	H
11	P25	AD5	RAM Address & Data bus 5 Journal print magnet 6 Receipt print magnet 6	AD5	RAM Address & Data bus 5 Printer magnet 6	I/O	H
12	P24	AD4	RAM Address & Data bus 4 Journal print magnet 5 Receipt print magnet 5	AD4	RAM Address & Data bus 4 Printer magnet 5	I/O	H
13	P23	AD3	RAM Address & Data bus 3 Journal print magnet 4 Receipt print magnet 4	AD3	RAM Address & Data bus 3 Printer magnet 4	I/O	H
14	P22	AD2	RAM Address & Data bus 2 Journal print magnet 3 Receipt print magnet 3	AD2	RAM Address & Data bus 2 Printer magnet 3	I/O	H
15	P21	AD1	RAM Address & Data bus 1 Journal print magnet 2 Receipt print magnet 2	AD1	RAM Address & Data bus 1 Printer magnet 2	I/O	H
16	P20	AD0	RAM Address & Data bus 0 Journal print magnet 1 Receipt print magnet 1	AD0	RAM Address & Data bus 0 Printer magnet 1	I/O	H
17	/RESET	/RESET	Reset signal	/RESET	Reset signal	I	L
18	P74	SCOM	Printer step motor common signal	NU	NU	O	H
19	P73	SM4	Printer step motor drive signal 4	NU	NU	O	H
20	AVSS	AVSS	GND	AVSS	GND		
21	P17	KR11	Key return signal 11	KR11	Key return signal 11	I	H
22	P16	KR10	Key return signal 10	KR10	Key return signal 10	I	H
23	P15	KR9	Key return signal 9	KR9	Key return signal 9	I	H
24	P14	KR8	Key return signal 8	KR8	Key return signal 8	I	H
25	P13	KR7	Key return signal 7	KR7	Key return signal 7	I	H
26	P12	KR6	Key return signal 6	KR6	Key return signal 6	I	H
27	P11	KR5	Key return signal 5	KR5	Key return signal 5	I	H
28	P10	P10	Dry battery voltage	P10	Dry battery voltage	I	
29	AVDD	AVDD	+5V	AVDD	+5V		
30	AVREF	AVREF	+5V (VCC)	AVREF	+5V (VCC)		
31	XT1	XT1	Sub clock: 32.768 kHz	P04	Sub clock: 32.768 kHz	I	
32	XT2	XT2		XT2		O	
33	VSS	VSS	GND	VSS	GND		
34	X1	X1	Main clock: 4.19 MHz	X1	Main clock: 4.19 MHz	I	
35	X2	X2		X2		O	
36	P37	MD	Printer motor ON signal	MD	Printer motor ON signal	O	H
37	P36	BUZ	Buzzer ON signal	BUZ	Buzzer ON signal	O	H/L
38	P35	RF	Receipt paper feed signal	RF	Receipt paper feed signal	O	H
39	P34	JF	Journal paper feed signal	JF	Journal paper feed signal	O	H
40	P33	STAMP	Stamp ON signal	STAMP	Stamp ON signal	O	H

No.	PIN NAME	ER-A310		ER-A330		I/O	ACTIVE
		SIGNAL NAME	DESCRIPTION	SIGNAL NAME	DESCRIPTION		
41	P32	/ALE	Address latch signal	/ALE	Address latch signal	O	↓
42	P31	/CE	Chip select signal	/CE	Chip select signal	O	L
43	P30	/WE	Write signal	/WE	Write signal	O	L
44	P03	RMS	NU	RMS	NU	I	
45	P02	R	Printer reset signal	DRS	Drawer open sensor	I	
46	P01	T	Printer timing signal	α	Printer timing signal	I	↑ H
47	P00	PE	Power enable signal	PE	Power enable signal	I	H
48	IC	IC	VSS	IC	VSS		
49	P72	SM3	Printer step motor drive signal 3	P72	NU	O	H
50	P71	SM2	Printer step motor drive signal 2	MG10	Printer magnet 10	O	H
51	P70	SM1	Printer step motor drive signal 1	MG9	Printer magnet 9	O	H
52	VDD	VDD	+5V	VDD	+5V		
53	P127	DRS	Drawer open sensor (input)	R-COM	Printer receipt common signal	O	H
54	P126	HCOM	Printer hammer common signal	J-COM	Printer journal common signal	O	H
55	P125	J1	Mode signal (ER-A310: GND)	J1	Mode signal (ER-A330: VDD)	I	H
56	P124	DR1	Standard drawer drive signal	DR1	Standard drawer drive signal	O	H
57	P123	KR4	Key return signal 4	KR4	Key return signal 4	I	H
58	P122	KR3	Key return signal 3	KR3	Key return signal 3	I	H
59	P121	KR2	Key return signal 2	KR2	Key return signal 2	I	H
60	P120	KR1	Key return signal 1	KR1	Key return signal 1	I	H
61	P117	A14	RAM Address 14	A14	RAM Address 14	O	
62	P116	A13	RAM Address 13	A13	RAM Address 13	O	
63	P115	A12	RAM Address 12	A12	RAM Address 12	O	
64	P114	A11	RAM Address 11	A11	RAM Address 11	O	
65	P113	A10	RAM Address 10	A10	RAM Address 10	O	
66	P112	A9	RAM Address 9	A9	RAM Address 9	O	
67	P111	A8	RAM Address 8	A8	RAM Address 8	O	
68	P110	DR2	Option drawer drive signal	DR2	Option drawer drive signal	O	H
69	P107	DP/ST8	Display segment signal DP Key strobe signal 8	DP/ST8	Display segment signal DP Key strobe signal 8	O	H
70	P106	G/ST7	Display segment signal G Key strobe signal 7	G/ST7	Display segment signal G Key strobe signal 7	O	H
71	VLOAD	VLOAD	VSS	VLOAD	VSS		
72	P105	F/ST6	Display segment signal F Key strobe signal 6	F/ST6	Display segment signal F Key strobe signal 6	O	H
73	P104	E/ST5	Display segment signal E Key strobe signal 5	E/ST5	Display segment signal E Key strobe signal 5	O	H
74	P103	D/ST4	Display segment signal D Key strobe signal 4	D/ST4	Display segment signal D Key strobe signal 4	O	H
75	P102	C/ST3	Display segment signal C Key strobe signal 3	C/ST3	Display segment signal C Key strobe signal 3	O	H
76	P101	B/ST2	Display segment signal B Key strobe signal 2	B/ST2	Display segment signal B Key strobe signal 2	O	H
77	P100	A/ST1	Display segment signal A Key strobe signal 1	A/ST1	Display segment signal A Key strobe signal 1	O	H
78	P97	DIG10	Display digit signal 10	DIG10	Display digit signal 10	O	H
79	P96	DIG9	Display digit signal 9	DIG9	Display digit signal 9	O	H
80	P95	DIG8	Display digit signal 8	DIG8	Display digit signal 8	O	H

3. RAM control



/WE: Write signal
When the signal is low, writing is performed. When the signal is high, reading is performed.

/CE: Chip select signal

A8-A14: Address bus

AD0-7: Address/Data bus

A0-1: Address bus signal

/ALE: Address latch signal

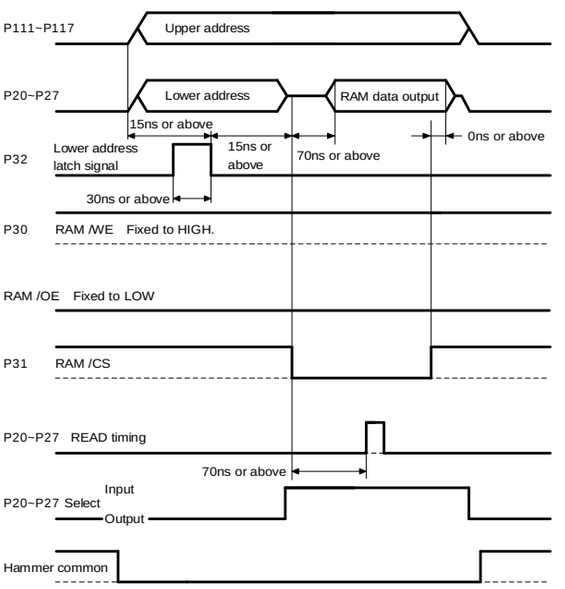
Address signals A0-A7 are used commonly with the data bus. When the address latch signal /ALE is input to IC3, the address/data bus signal AD0-AD7 access the RAM as address signals A0-A7.

(READ)

As shown in the attached time chart, address signals are outputted from P20-P27, P111-P117, and the lower address is latched with P32. The modes at P20-P27 are changed to the input mode. The chip enable signal (P31) is output for the RAM. Then the output data from the RAM are read from P20-P27.

RAM control

(READ cycle)

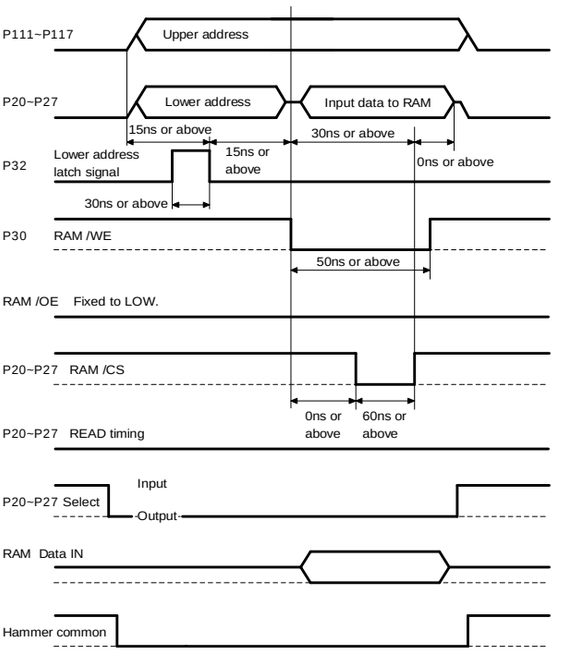


(WRITE)

As shown in the attached time chart, address signals are outputted from P20-P27, P111-P117, and the lower address is latched with P32. The write enable signal (P30) is output. The write data to the RAM are output from P20-P27. Then the chip enable signal (P31) is output to write the data.

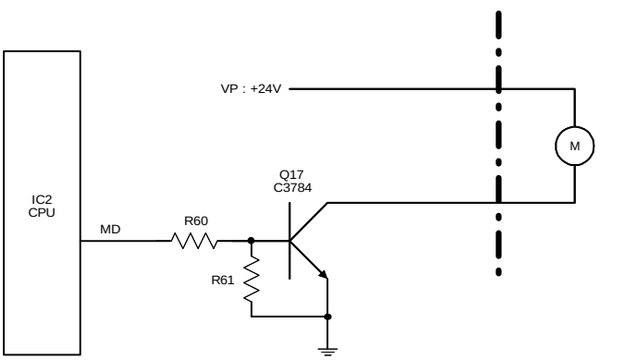
RAM control

(WRITE cycle)



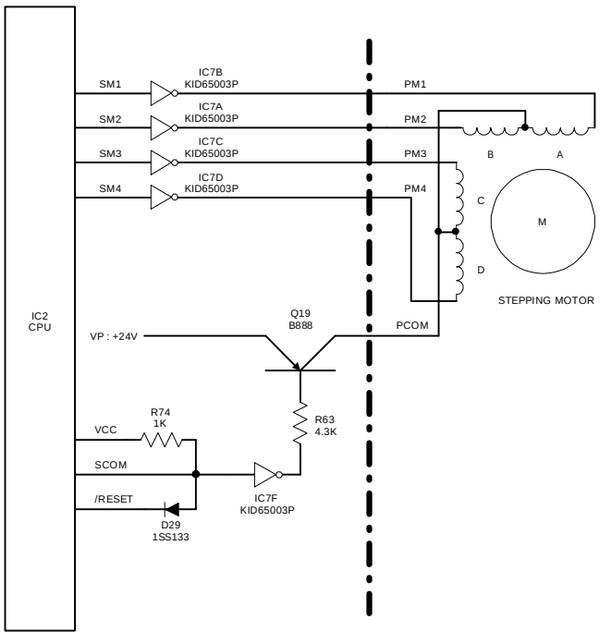
4. Printer control circuit (ER-A310)

1) Printer motor drive circuit



The motor drive signal MD from the CPU is used to operate the printer motor with switching operation of transistor Q17.

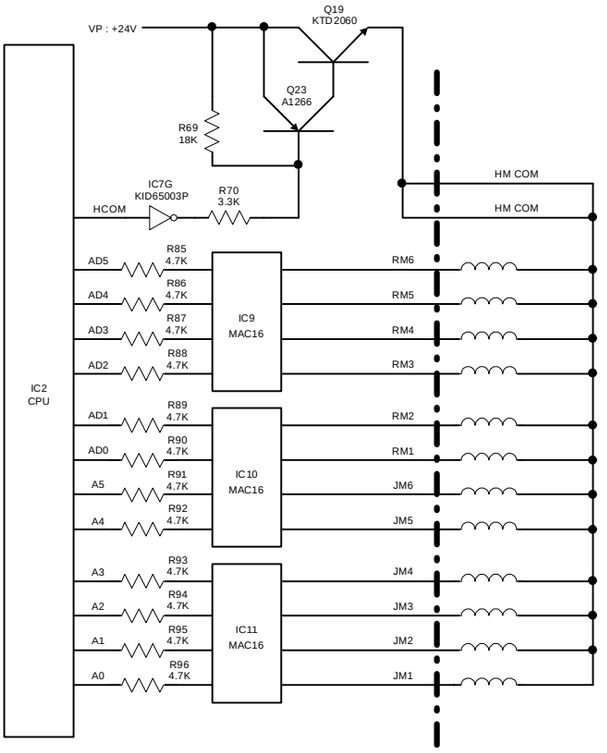
2) Print wheel drive circuit



The stepping motor is used to drive the printer wheel.

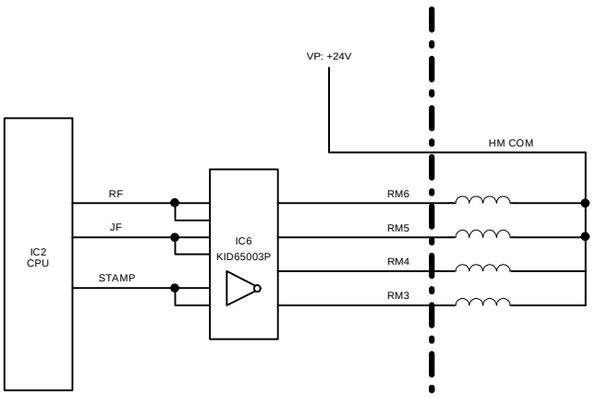
The common signal SCOM from the CPU is used to supply voltage VP to the stepping motor with the switching operation of transistor Q19, and the stepping motor solenoid drive signal is used to operate the stepping motor.

3) Print solenoid drive circuit



Since the address bus is used to drive the print solenoid, an access to the RAM cannot be performed during printing. The common voltage of the print solenoid is supplied by switching operations of transistors Q23 and Q19 with the HCOM signal.

4) Paper feed solenoid and stamp solenoid drive circuit

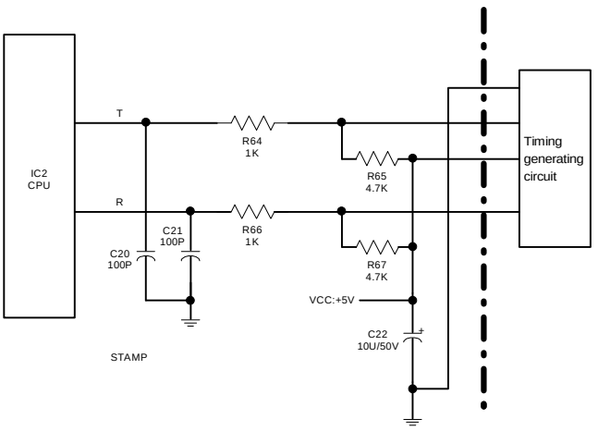


PF: Paper feed solenoid drive signal (Receipt side)

JF: Paper feed solenoid drive signal (Journal side)

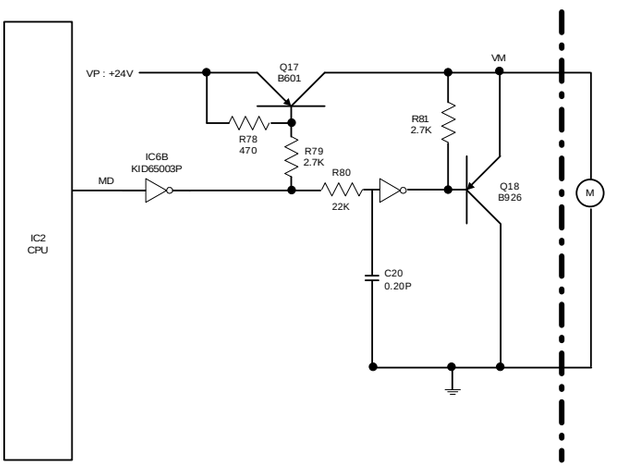
STAMP: Stamp solenoid drive signal (Receipt side)

5) Timing signal circuit



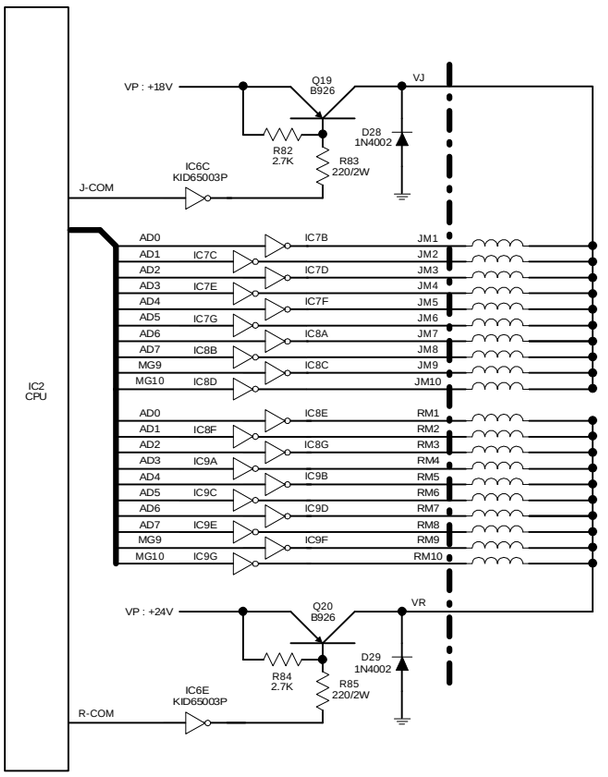
5. Printer motor drive circuit (ER-A330)

1) Printer motor drive and brake circuit



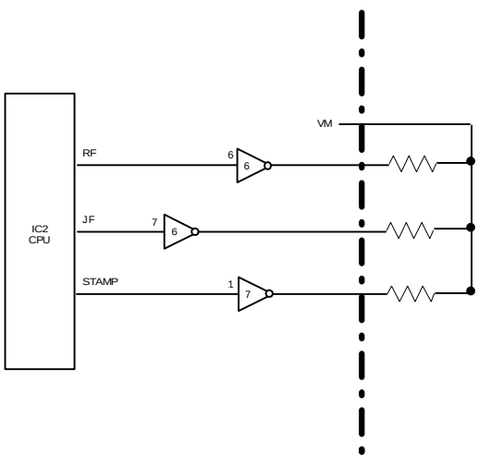
The printer motor is operated by switching operation of transistor Q17 with the motor drive signal MD from the CPU.

2) Print solenoid drive circuit



Since the address bus is used to drive the print solenoid, an access to the RAM cannot be performed during printing. The common voltage of the print solenoid is supplied by switching operations of transistors Q23 and Q19 with the J-COM signal and the R-COM signal.

3) Paper feed solenoid and stamp solenoid drive circuit

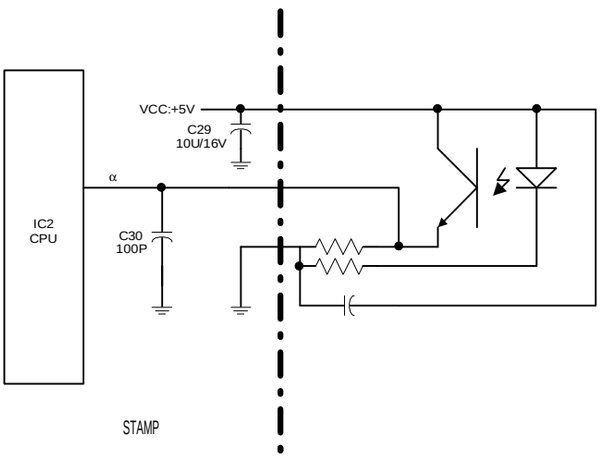


PF: Paper feed solenoid drive signal (Receipt side)

JF: Paper feed solenoid drive signal (Journal side)

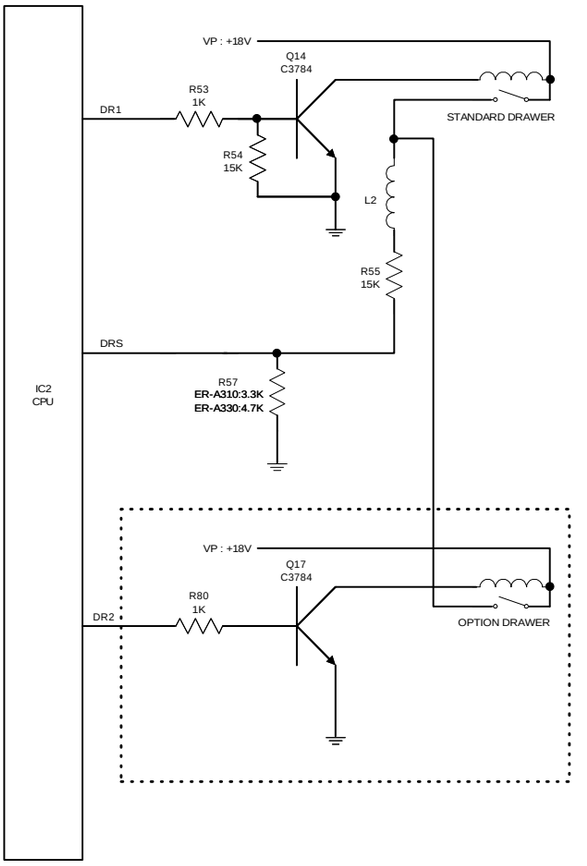
STAMP: Stamp solenoid drive signal (Receipt side)

4) Timing signal circuit



The timing signal α is delivered to the CPU by the photo transistor attached to the printer.

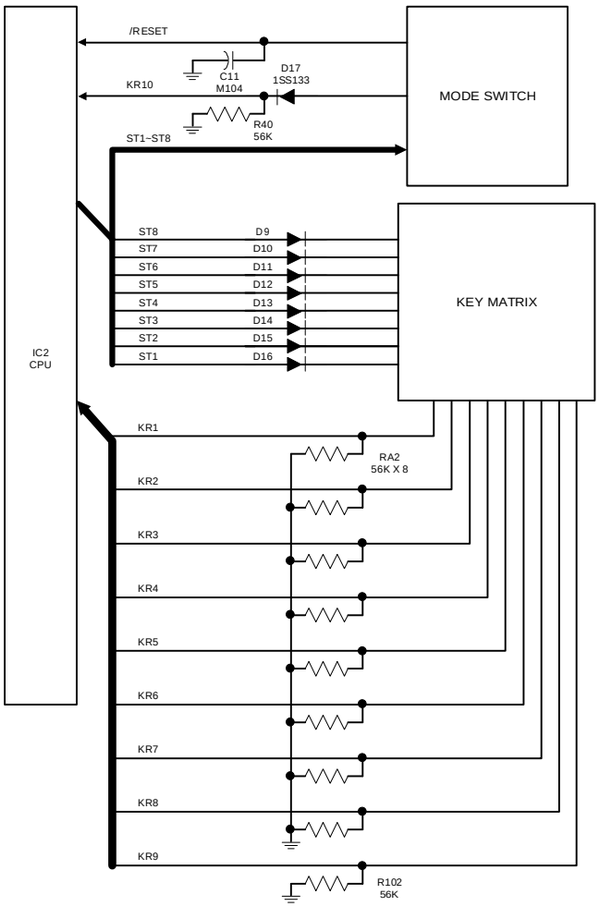
6. Drawer drive circuit



The solenoid is driven by switching operation of transistor Q14 with the drive signal DR1 from the CPU.

When an option drawer is used, the parts enclosed with the dotted line must be attached to the PWB.

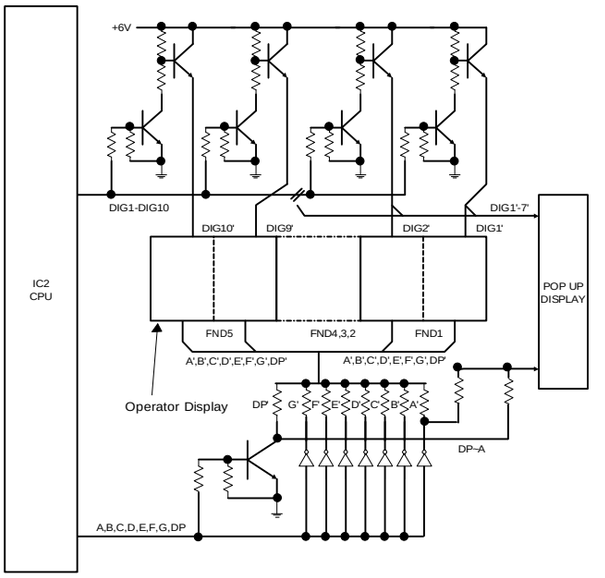
7. Keyboard circuit



The keyboard performs key scanning with the eight strobe signals ST1-ST8, and returns the nine return signal KR1-KR9 to the CPU.

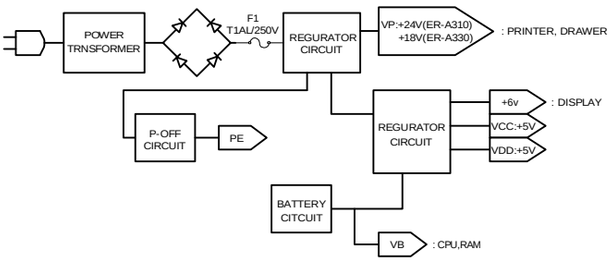
The mode switch performs scanning with the eight strobe signals ST1-ST8, and returns the return signal KR10 to the CPU. When the mode switch is at SRV position, the reset signal /RESET is outputted.

8. Display circuit

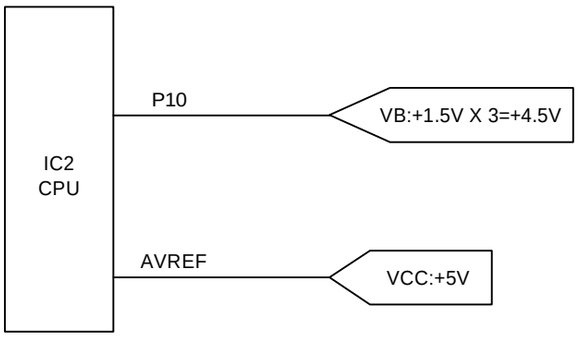


The 7-segment LED is used in the display. The operator display uses 10 digit signals, and the pop-up display uses 7 digit signals.

9. Power supply circuit

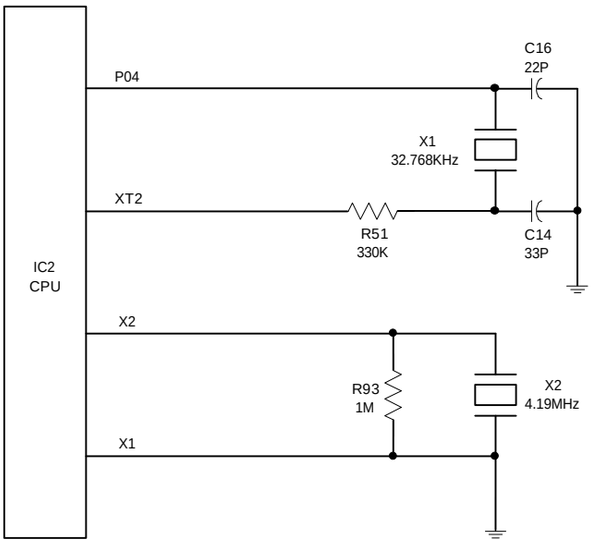


10. Battery voltage monitor circuit



The battery voltage signal is inputted to the CPU P10 and the comparison reference voltage VCC (+5V) is inputted to the CPU VREF to monitor the battery voltage. When the input to P10 falls below 7/10VCC=+3.5V, the low battery display is made.

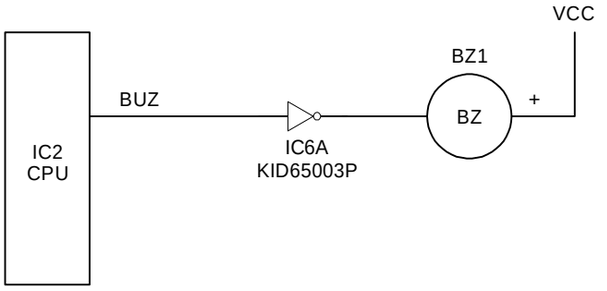
11. Clock generator circuit



X2: 4.19MHz is inputted as the CPU main clock.

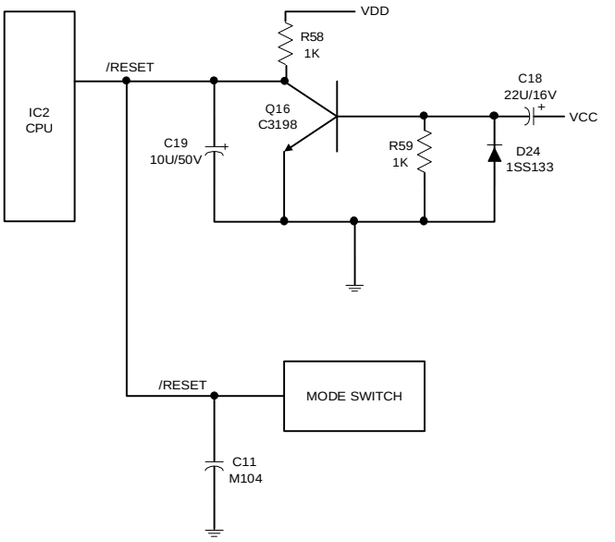
X1: 32.768KHz is inputted as the time renewal clock.

12. Buzzer circuit



This circuit sounds buzzer with the BUS signal from the CPU.

13. Reset circuit



The reset signal is formed with VOC and VDD. The /RESET signal is also outputted when the mode switch is at SRV position.

CHAPTER 5 TEST FUNCTION

1. Start of test function

The following key operation is required in the SRV mode to start the test.

XXXX → [ST]

Test command

Master reset is required when the system is to be started for the first time.

2. List of test commands

No.	Test contents	Key operations
1	Mode switch test	1 → ST
2	Keyboard test	XXXX02 → ST
3	Display and Buzzer test	3 → ST
4	Standard Drawer test	4 → ST
5	Option Drawer test	14 → ST
6	Printer test	5 → ST
7	RAM test	6 → ST
8	Battery voltage test	7 → ST

NOTE-1: Test message is printed on the journal

NOTE-2: The contents of the totalizer and the preset values are not erased by the test.

3. Test function

1) Test No. 1: Mode switch test

① Key operation

1 → [ST]

Then, turn the mode switches in the following order.

∗ In the mode switch test, turn the switch rhythmically.

MODE: SRV→PGM→VOID→OFF→OP X/Z→REG→MGR→X1/Z1→X2/Z2→SRV

DISPLAYE: (0) → (1) → (2) →OFF→ (3) → (4) → (5) → (6) → (7) → (0)

② Description
As the mode switch position number is displayed, check the number.

③ Termination
The test can be terminated when the mode switch is turned to the SRV side from other position.

Termination print at normal end 0 1

Termination print and error ∗∗∗∗∗∗∗ 1

2) Test No. 2: Keyboard test

① Key operation

XXXX 02 → [ST]

Sum check data

Test command

(1) Enter the test command in succession to the sum check data of the model.

Model name	Sum check data (Standard keyboard data)
ER-A310	2428
ER-A330	2946

∗NOTE: Sum check data
The check sum is a decimal number obtained by converting the hard code hexadecimal total of all keys.
The [CA/AT] key are the exception.

(2) Next, push every key on the keyboard except for the receipt and journal keys.
When the [CA/AT] key is pressed, the termination printout is immediately produced assuming that all keys have been pressed.
There is no order in which the keys have to be depressed.
Display: [02 XX] ← XX = position code.

[Keyboard position code of model vs. key to be pressed]
[All key position code]

								65	68	67	58	77	78
								66	55	56	57	48	38
↑R	↑J	61	64	63	54	53	62	42	45	35	46	47	37
70	41	31	44	34	43	33	52	32	76	75	36	28	27
10	21	20	24	74	23	73	22	72	15	05	16	17	18
00	11	01	14	04	13	03	12	02	26	25	06	07	08

[ER-A310 standard keyboard layout]

									68	67		77	78
									55	56		48	38
↑R	↑J	61		63	54	53				35		47	37
70	41	31		34	43	33			76	75			27
10	21	20		74	23	73				05			
00	11	01		04	13	03			26	25			08

[ER-A330 standard keyboard layout]

								65	68	67	58	77	78
									55	56	57	48	38
↑R	↑J	61		63	54	53			45	35	46	47	37
70	41	31		34	43	33			76	75	36		27
10	21	20		74	23	73			15	05	16		
00	11	01		04	13	03			26	25	06		08

② Description
Until the depression of the [ST] key, the sum of key position codes is compared with the sum check data, except for the [CA/AT] key.

③ Termination
The test terminates with the depression of the [CA/AT] key and the termination printout is produced.

Termination print at normal end 0 2

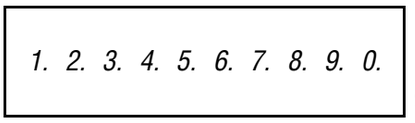
Termination print at error ******* 2

3) Test No. 3: Display and buzzer test

① Key operation

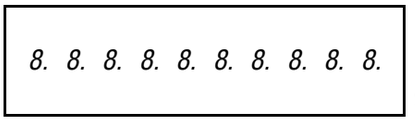
3 → [ST]

② Description
Continuous beeps and the display are tested.



State of display

The decimal point is shifted digit by digit from the lowest digit (every 200 msec).
Then all segments are lighted (for about 1 sec).



State of display

Pressing any key will terminate the test.

③ Check items
Check that each position display is correct.
Check that the display is even and uniform.
Check that the buzzer sound is normal. (No interruption and vibrations of sounds.)

④ Test end

End print 3

4) Test No. 4: Drawer open test

① Key operation

4 → [ST] : For stardard drawer

14 → [ST] : For option drawer

② Description
With this test, the drawer opens and its state is displayed in the following manner:

Drawer open → [XX 0]

Drawer closed → [XX C]

XX = 04 or 14

∗ When the model that has no drawer sensor switch, displayed is "C".

③ Termination
With depression of any key

Termination print 04 (For standard drawer)
14 (For Option drawer)

5) Test No. 5: Continuous print test

① Key operation

5 → [ST]

② Description
The continuous printing as shown below is performed.

③ Termination
After pressing any key, one-cycle of printing is performed before completing the operation.

Print format

ER-A310

0	0	0	0	0	0	0	0	0	CD	CH	½
1	1	1	1	1	1	1	1	1	P	CK	1
2	2	2	2	2	2	2	2	2	X	CR	2
3	3	3	3	3	3	3	3	3	Z	EX	3
4	4	4	4	4	4	4	4	4	#	TX	4
5	5	5	5	5	5	5	5	5	RF	FS	5
6	6	6	6	6	6	6	6	6	VD	%	6
7	7	7	7	7	7	7	7	7	TR	⊖	7
8	8	8	8	8	8	8	8	8	Q	RA	CG
9	9	9	9	9	9	9	9	9	@	PO	TD
★	★	★	★	★	★	★	★	★	+	NS	TL
–	–	–	–	.	.	.	.	No	–	∗	ST
PL		GT		–		–		–		CA	
	1										
		2									
			3								
				4							
					5						
						6					
							7				
								8			
									9		
										NS	
											ST

ER-A330

PL	Z	TX	.	.	.	.	GT	CA	@
–	–	–	–	–	–	–	#	CK	Q
★	★	★	★	★	★	★	%	CH	CG
0	0	0	0	0	0	0	0	RA	TD
1	1	1	1	1	1	1	1	PO	1
2	2	2	2	2	2	2	2	VD	2
3	3	3	3	3	3	3	3	NS	3
4	4	4	4	4	4	4	4	TX	4
5	5	5	5	5	5	5	5	FS	5
6	6	6	6	6	6	6	6	⊖	6
7	7	7	7	7	7	7	7	X	½
8	8	8	8	8	8	8	8	EX	ST
9	9	9	9	9	9	9	9	RF	TL
0									
	1								
		2							
			3						
				4					
					5				
						6			
							7		
								EX	
									TL

6) Test No. 6: RAM test

① Key operation

6 → ST

② Test content

The RAM of 256KByte (standard provision) is checked.
Read and write of each data are made to the addresses shown in the table below to compare the data. If there is no error, the machine returns to the key wait state. If an error occurs, intermittent buzzer sounds are made and the error print is made. Press any key to cancel the error.

X AD / Upper AD	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
000X	0F	1E	2D	3C	4B	5A	69	78	87	96	A5	B4	C3	D2	E1	F0
001X	F0	0F	1E	2D	3C	4B	5A	69	78	87	96	A5	B4	C3	D2	E1
002X	E1	F0	0F	1E	2D	3C	4B	5A	69	78	87	96	A5	B4	C3	D2
004X	D2	E1	F0	0F	1E	2D	3C	4B	5A	69	78	87	96	A5	B4	C3
008X	C3	D2	E1	F0	0F	1E	2D	3C	4B	5A	69	78	87	96	A5	B4
010X	B4	C3	D2	E1	F0	0F	1E	2D	3C	4B	5A	69	78	87	96	A5
020X	A5	B4	C3	D2	E1	F0	0F	1E	2D	3C	4B	5A	69	78	87	96
040X	96	A5	B4	C3	D2	E1	F0	0F	1E	2D	3C	4B	5A	69	78	87
080X	87	96	A5	B4	C3	D2	E1	F0	0F	1E	2D	3C	4B	5A	69	78
100X	78	87	96	A5	B4	C3	D2	E1	F0	0F	1E	2D	3C	4B	5A	69
200X	69	78	87	96	A5	B4	C3	D2	E1	F0	0F	1E	2D	3C	4B	5A
400X	5A	69	78	87	96	A5	B4	C3	D2	E1	F0	0F	1E	2D	3C	4B
800X	4B	5A	69	78	87	96	A5	B4	C3	D2	E1	F0	0F	1E	2D	3C

③ Check item

Check the end print.

④ Test end

Normal end print 0 6

Error print ******** 6

7) Test No. 7: Battery voltage test

① Key operation

7 → ST

② Details of test

By the above key operations, the battery voltage is checked with the A/D conversion circuit of CPU and the following display is made.

***

Voltage conversion value when the reference voltage Vref (+5V) is supposed to 256.

③ Check item

Display check item

(Example) If the battery voltage is +3 V, 256 × 3/5 = 153 is displayed.

④ Test end

Pressing any key will make the following print and terminate the test.

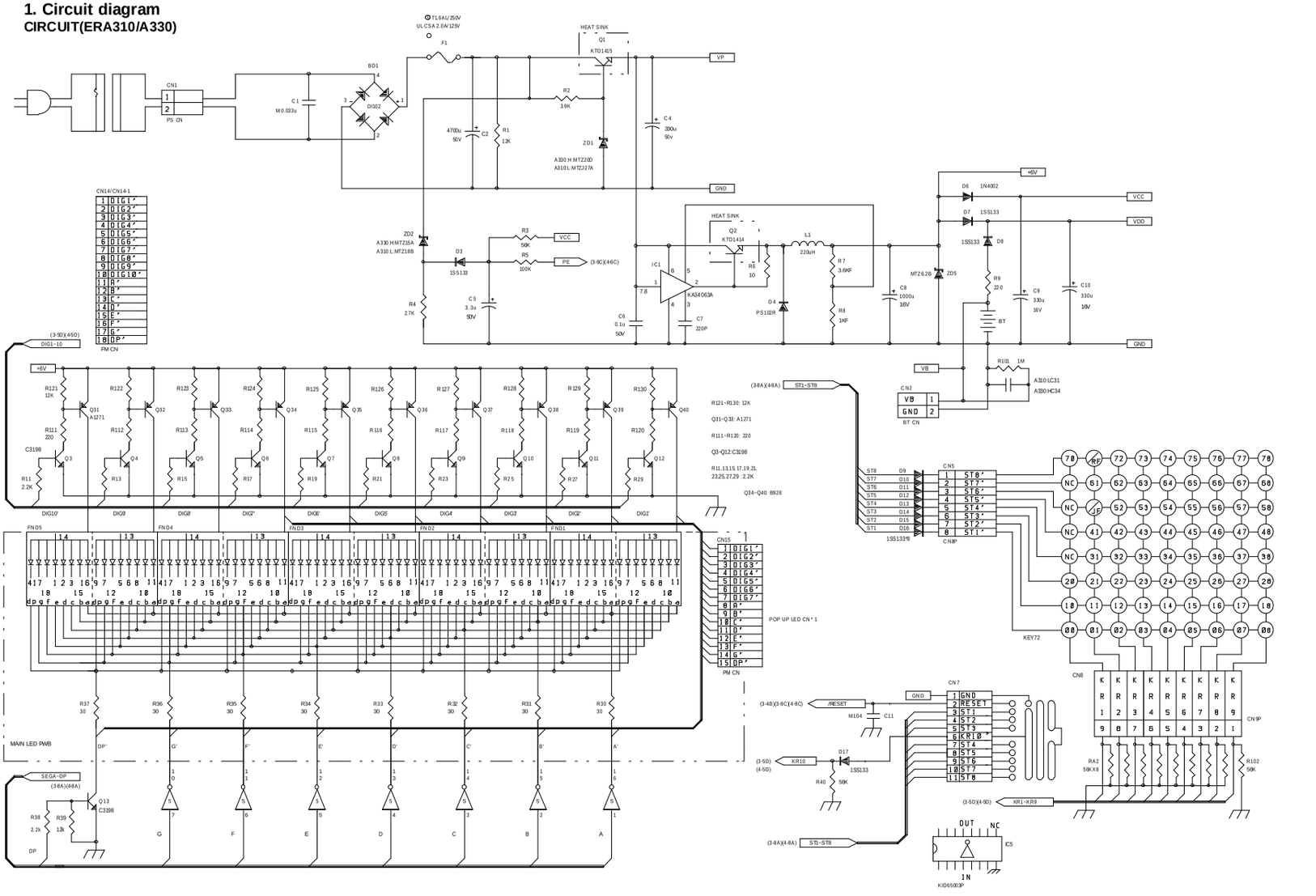
End print 07

(Note) Specified value: 3.0 V

CHAPTER 6. CIRCUIT DIAGRAM & PWB LAYOUT

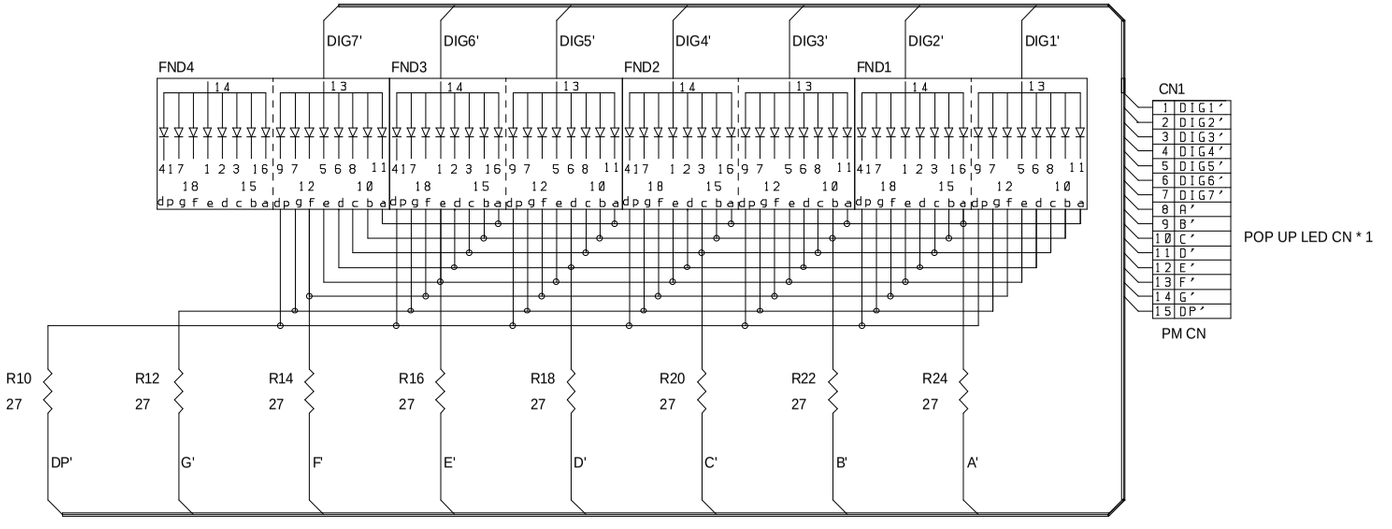
1. Circuit diagram

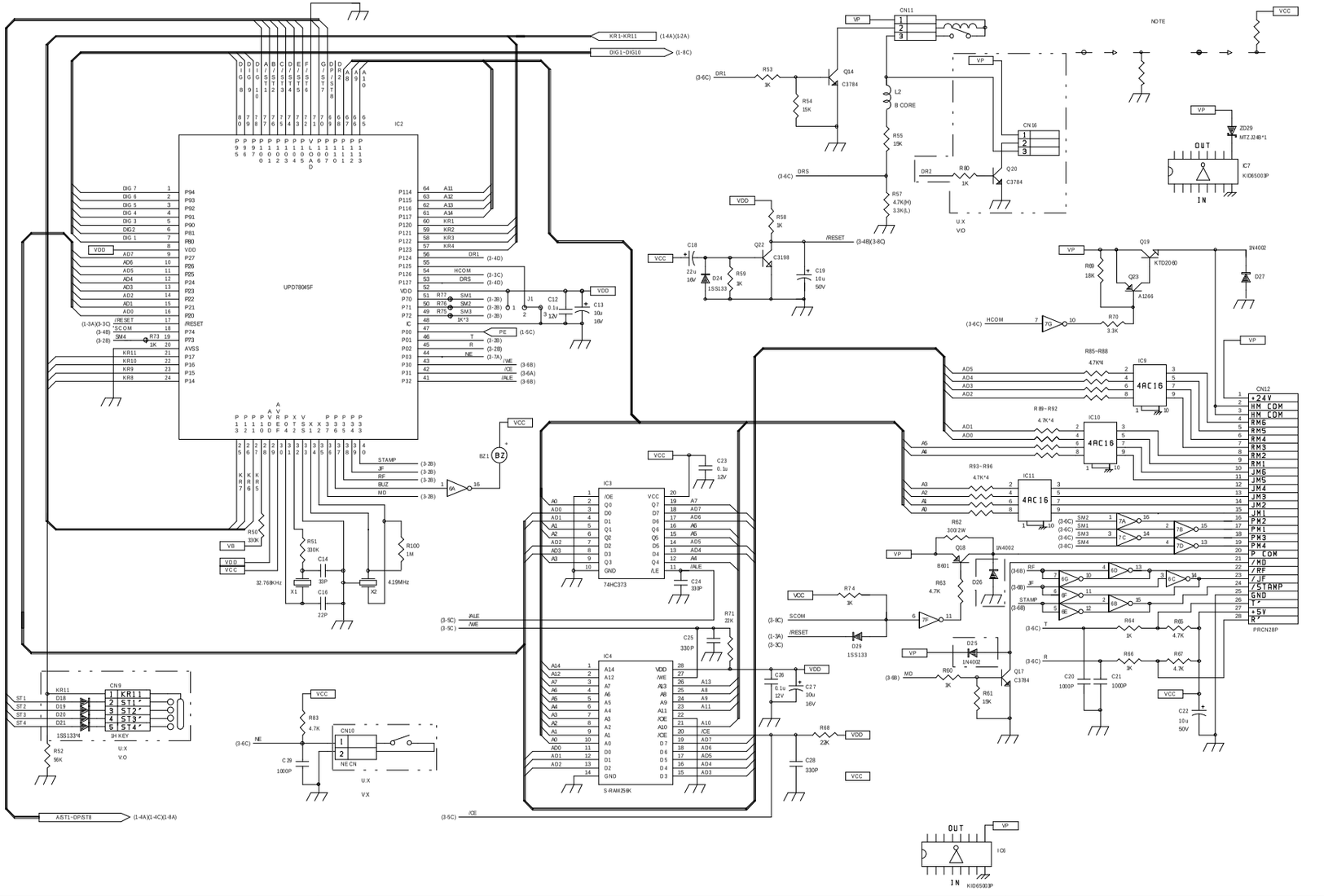
CIRCUIT(ERA310/A330)



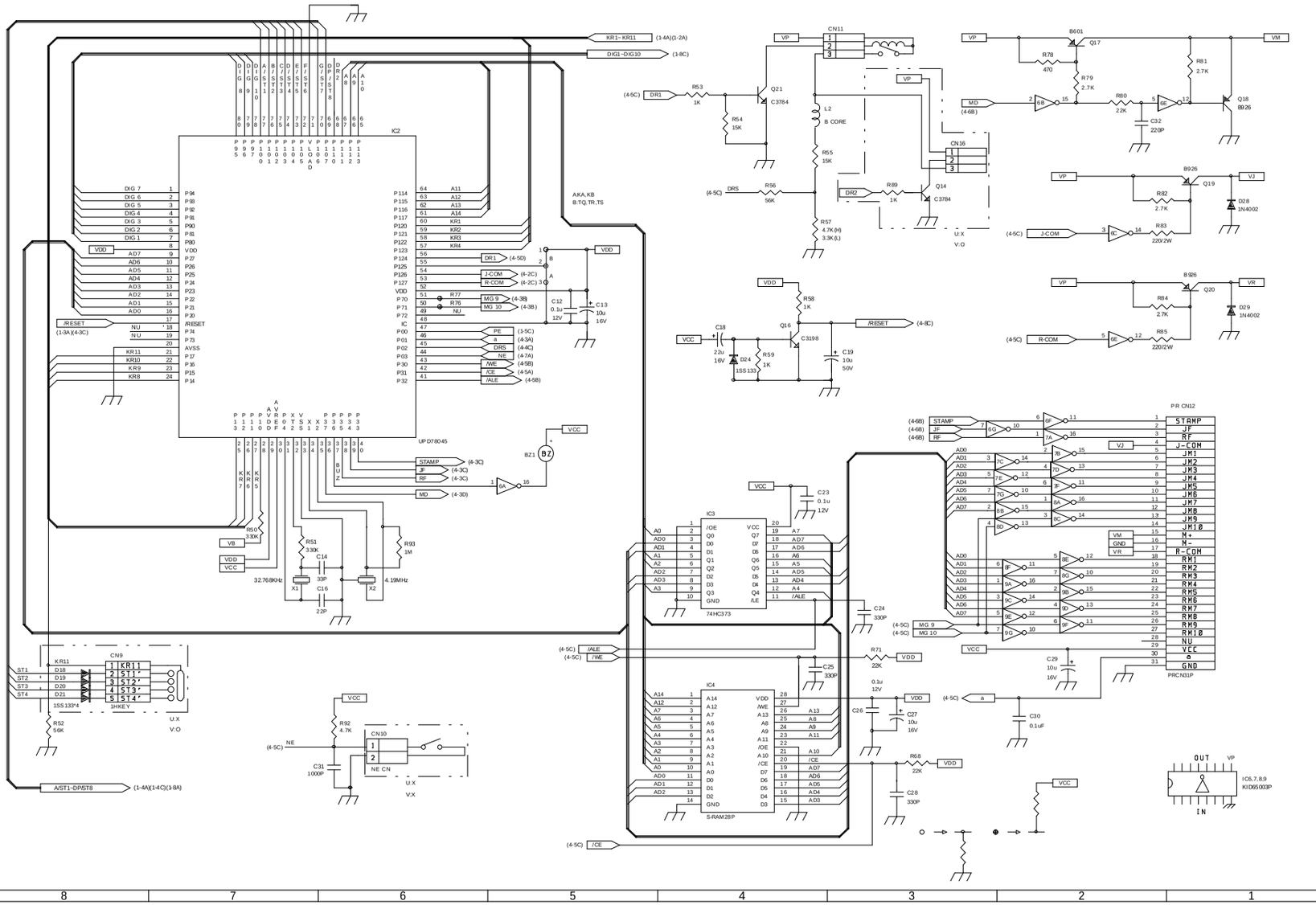
CIRCUIT(ERA310/A330 POP)

2/4



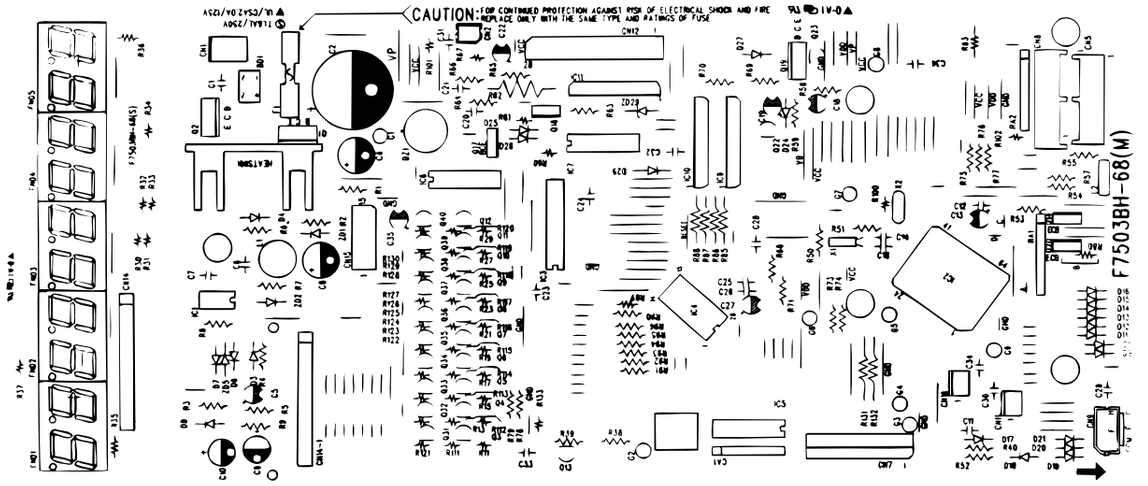

IC2
UPD78065F
IC3
74HC373
IC4
S-RAM256K
IC7
KID65003P
IC9
IC10
IC11
4AC16
CN9
CN10
CN11
CN12
CN16
PRCN28P
KR1-KR11
DIG1-DIG10
VP
VCC
VDD
VSS
SCOM
/RESET
/WE
/OE
/ALE
NOTE
+24V
HM COM
RM6
RM5
RM4
RM3
RM2
RM1
JM6
JM5
JM4
JM3
JM2
JM1
PM2
PM1
PM3
PM4
P COM
/MD
/RF
/JF
/STAMP
GND
+5V
R7
1SS133*4
1H KEY
S-RAM256K
KID65003P

CIRCUIT(ERA330) **4/4**

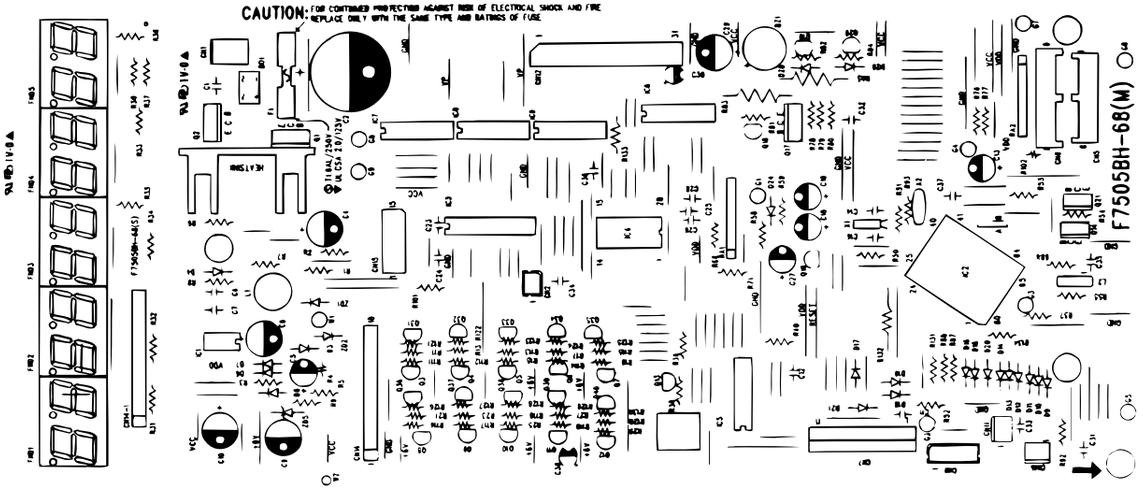


2. PWB layout

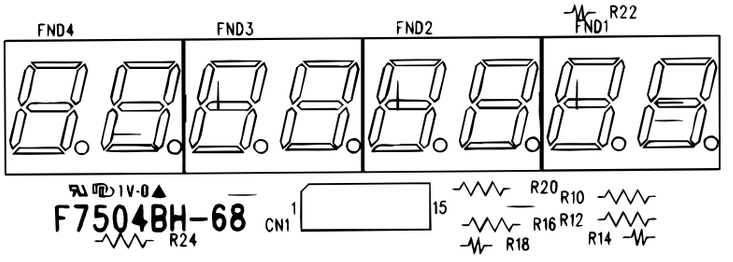
① ER-A310 Main PWB layout



② ER-A330 Main PWB layout



③ ER-A310/A330 Pop-up display PWB layout



SHARP PARTS GUIDE

MODEL ER-A310 ER-A330

SRV Key : LKGIM7113RCZZ
PRINTER : ER-A310 : CR-510
ER-A330 : UCR-812A
(For “U” & “A” version)

CONTENTS

1 Exteriors [ER-A310]
2 Exteriors [ER-A330]
3 Keyboard unit
4 Packing material&Accessories
5 Drawer box unit (SK423type)
6 Main PWB unit [ER-A310]
7 Main PWB unit [ER-A330]
8 Pop-up PWB unit
9 Articles for consumption
10 Service route options
■ Index

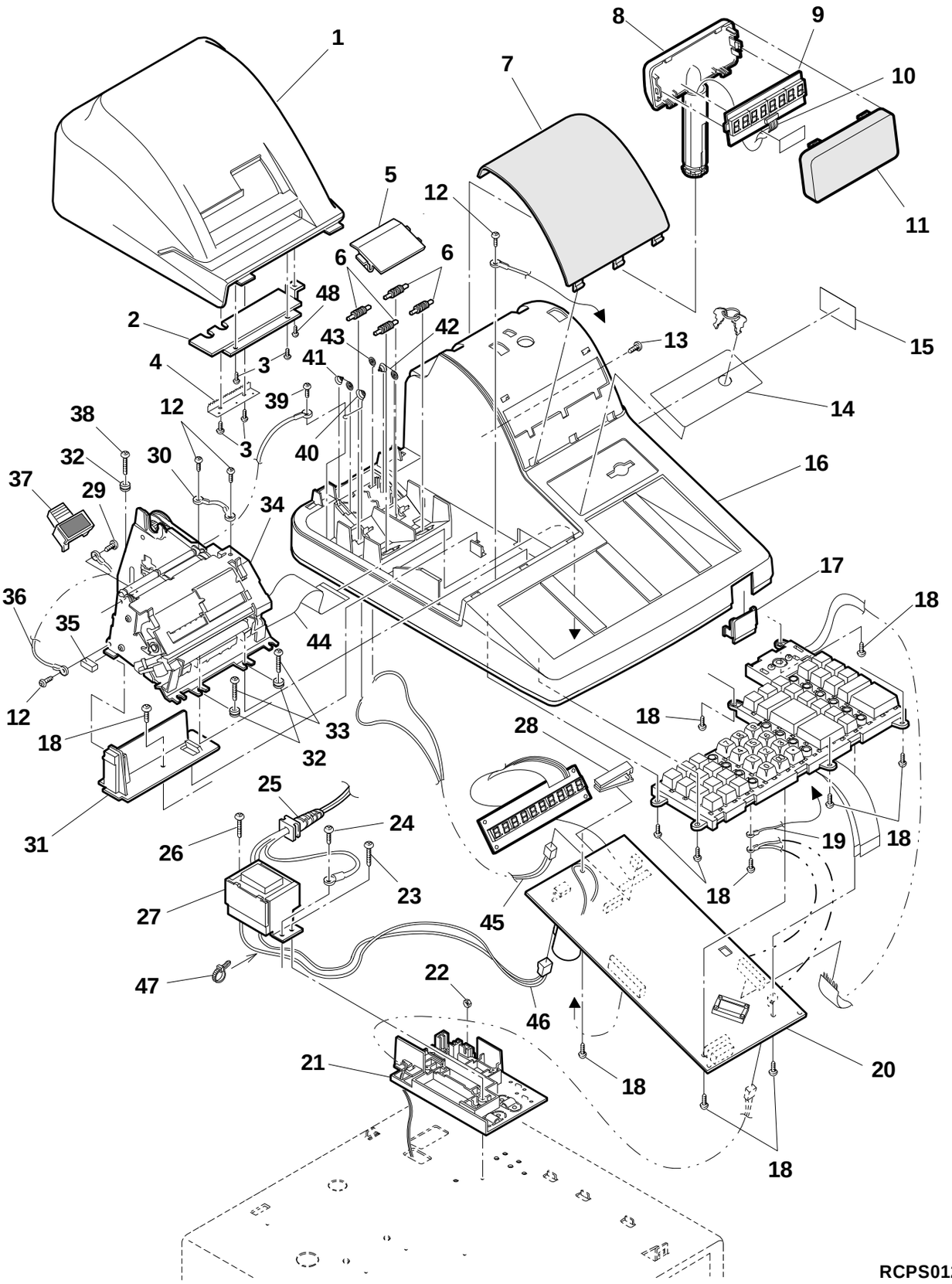
Because parts marked with ! is indispensable for the machine safety maintenance and operation, it must be replaced with the parts specific to the product specification.

ER-A310U

1 Exteriors[ER-A310]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	GCOVA7123BHZZ	AY	N	D	Printer cover L
2	LPLTP6713BHZZ	AL	N	C	Printer guide plate
3	LX-BZ6788BHZZ	AD	N	C	Screw
4	PCUT-6654BHZZ	AE	N	C	Paper cutter
5	GCOVH7124BHZZ	AF	N	D	Battery cover
6	NROLP6651BHZZ	AD		C	Paper plate roller
7	PFILW6962BHZZ	AU	N	D	Display filter
8	GCAB-7237BHZZ	AM	N	D	Pop up cabinet
9	CPWBF7504BH01	BC	N	E	Pop up PWB unit
10	QCNW-7815BHZZ	AR	N	C	P-flat cable (15p)
11	PFILW6961BHZZ	AP	N	D	Pop up filter
12	XHPSD30P06K00	AA		C	Screw (3 X 6K)
13	XBBSC30P08000	AA		C	Screw (3 X 8) (for top cover-trans cover)
14	HDECP6847BHZZ	AM	N	D	Deco panel
15	TCAUZ6684BHZZ	AD		D	Caution lanel [U.S.A]
	TCAUZ6685BHZA	AA		D	Caution label [Canada]
16	GCABB7236BHZZ	BC	N	D	Top cabinet
17	GFTAF6921BHZZ	AG	N	D	Clerk cover A
18	XEBSD30P08000	AA		C	Screw (M3 X 8)
19	QCNW-7810BHZZ	AG	N	C	GND wire
20	CPWBF7503BH01	BV	N	E	Main PWB unit
21	GCOVH7125BHZZ	AP	N	D	Trans cover
22	XNESD30-24000	AA		C	Nut (M3)
23	LX-BZ6781BHZZ	AB		C	Screw (for transformer)
24	XBPBZ40P08K00	AA		C	Screw (4 X 8K)
! 25	QACCD8411QCZZ	AN		B	AC cord (6A bush 2.5M)
26	XJPSD30P16X00	AB		C	Screw (3 X 16X) (for transformer)
! 27	RTRNP6889BHZZ	BC	N	B	Power transformer (120V)
28	LHLDZ1017ACZZ	AC		C	Clamp
29	XHBSD40P06000	AA		C	Screw (4 X 6)
30	QCNW-7823BHZZ	AE	N	C	Earth wire
31	LHLDZ6840BHZZ	AL	N	C	Printer holder
32	PCUSG7024BHZZ	AE	N	C	Printer cushion
33	XJPSD30P12X00	AB		C	Screw (3 X 12X) (for printer)
34	KI-OB6780RCZZ	BW	N	E	Printer unit (CR-510)
35	PGUMM6726BHZZ	AE	N	C	Printer gum
36	QCNW-7808BHZZ	AF	N	C	P-GND wire
37	PSTM-6805RCZZ	AT	N	C	Stamp(YOUR RECEIPT THANK YOU)
38	XBPSD30P10KS0	AB		C	Screw (M3 X 10KS) (for printer)
39	LX-HZ0056BHZZ	AA		C	Screw (for trans)
40	QTANZ6657BHZZ	AD	N	C	Battery terminal d
41	QTANZ1363CCZZ	AA		C	Battery terminal (+/-)B
42	QTANZ1362CCZZ	AA		C	Battery terminal (+/-)A
43	QTANZ6641BHZZ	AC		C	Battery terminal c
44	QCNW-7806BHZZ	AN	N	C	PR flat cable (28p)
45	QCNW-7816BHZZ	AR	N	C	B/T cable (2p)
46	QCNW-7451BHZZ	AG		C	PS cable (2pin)
47	LBNDJ2003SCZZ	AA		C	Cable band (80mm)
48	XEBSD20P06000	AA		C	Screw (2 X 6)

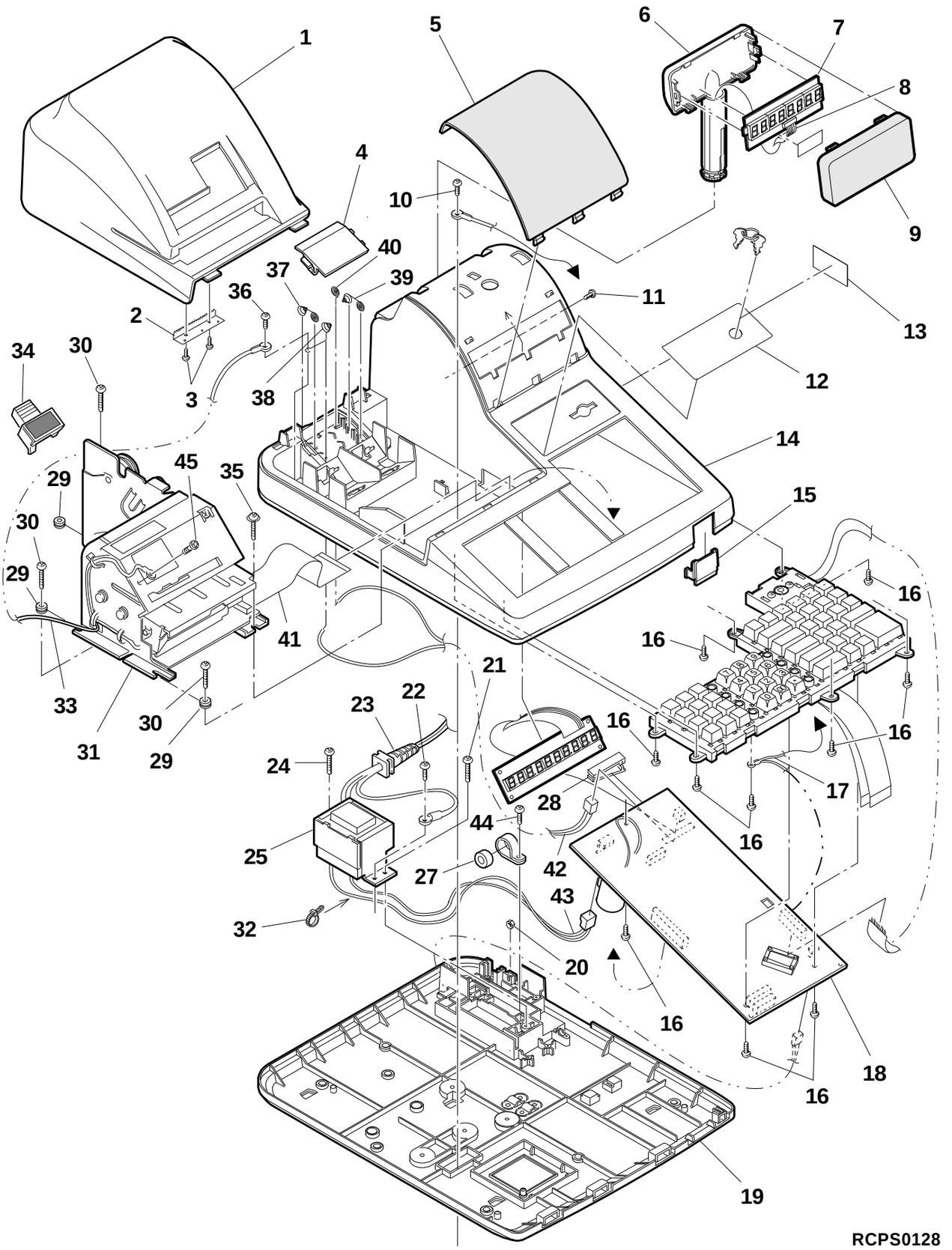
1 Exteriors[ER-A310]



2 Exteriors[ER-A330]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	GCOVA7128BHZZ	AY	N	D	Printer cover H
2	PCUT-6654BHZZ	AE	N	C	Paper cutter
3	LX-BZ6788BHZZ	AD	N	C	Screw
4	GCOVH7124BHZZ	AF	N	D	Battery cover
5	PFILW6962BHZZ	AU	N	D	Display filter
6	GCAB-7237BHZZ	AM	N	D	Pop up cabinet
7	CPWBF7504BH01	BC	N	E	Pop up PWB unit
8	QCNW-7815BHZZ	AR	N	C	P-flat cable (15p)
9	PFILW6961BHZZ	AP	N	D	Pop up filter
10	XHPSD30P06K00	AA		C	Screw (3 X 6K)
11	XBBSC30P08000	AA		C	Screw (3 X 8) (for top cover-trans cover)
12	HDECP6847BHSA	AM	N	D	Deco panel
13	TCAUZ6684BHZZ	AD		D	Caution lanel [U.S.A]
	TCAUZ6685BHZA	AA		D	Caution label [Canada]
14	GCABB7236BHZA	BC	N	D	Top cabinet
15	GFTAF6921BHZZ	AG	N	D	Clerk cover A
16	XEBSD30P08000	AA		C	Screw (M3 X 8)
17	QCNW-7805BHZZ	AF	N	C	Earth wire (mode s/w)
18	CPWBF7505BH01	BU	N	E	Main PWB unit (include No.17)
19	GCABA7239BHZZ	BB	N	D	Bottom cabinet
20	XNESD30-24000	AA		C	Nut (M3)
21	XHBSD30P08000	AA		C	Screw (3 X 8)
22	XBPBZ40P08K00	AA		C	Screw (4 X 8K)
! 23	QACCD8411QCZZ	AN		B	AC cord (6A bush 2.5M)
24	XJPSD30P16X00	AB		C	Screw (3 X 16X) (for transformer)
! 25	RTRNP9516BHZZ	BD	N	B	Power transformer (120V)
27	RCORF6698BHZZ	AR		C	Core
28	LHLDZ1017ACZZ	AC		C	Clamp
29	PCUSG1220BHZZ	AE		C	Printer cushion
30	XBPSD30P10KS0	AB		C	Screw (M3 X 10KS) (for printer)
31	KI-OB6783RCZZ	BZ	N	E	Printer unit (CR-812A)
32	LBNDJ2003SCZZ	AA		C	Cable band (80mm)
33	QCNW-7809BHZZ	AH		C	Earth wire
34	PSTM-6658RC01	AR		C	Stamp(YOUR RECEIPT THANK YOU)
35	LX-BZ6755BHZZ	AB		C	Screw (for transformer)
36	LX-BZ6781BHZZ	AB		C	Screw
37	QTANZ1363CCZZ	AA		C	Battery terminal (+/-)B
38	QTANZ6657BHZZ	AD	N	C	Battery terminal d
39	QTANZ1362CCZZ	AA		C	Battery terminal (+/-)A
40	QTANZ6641BHZZ	AC		C	Battery terminal c
41	QCNW-7807BHZZ	AN	N	C	PR flat cable (31p)
42	QCNW-7817BHZZ	AF	N	C	B/T cable (2p)
43	QCNW-7451BHZZ	AG		C	Trans cable (2pin)
44	XUBSD30P10000	AC		C	Screw (3 X 10)
45	00B1009882///	AC		C	C.C.S.Screw (M3 X 5.5)

2 Exteriors[ER-A330]



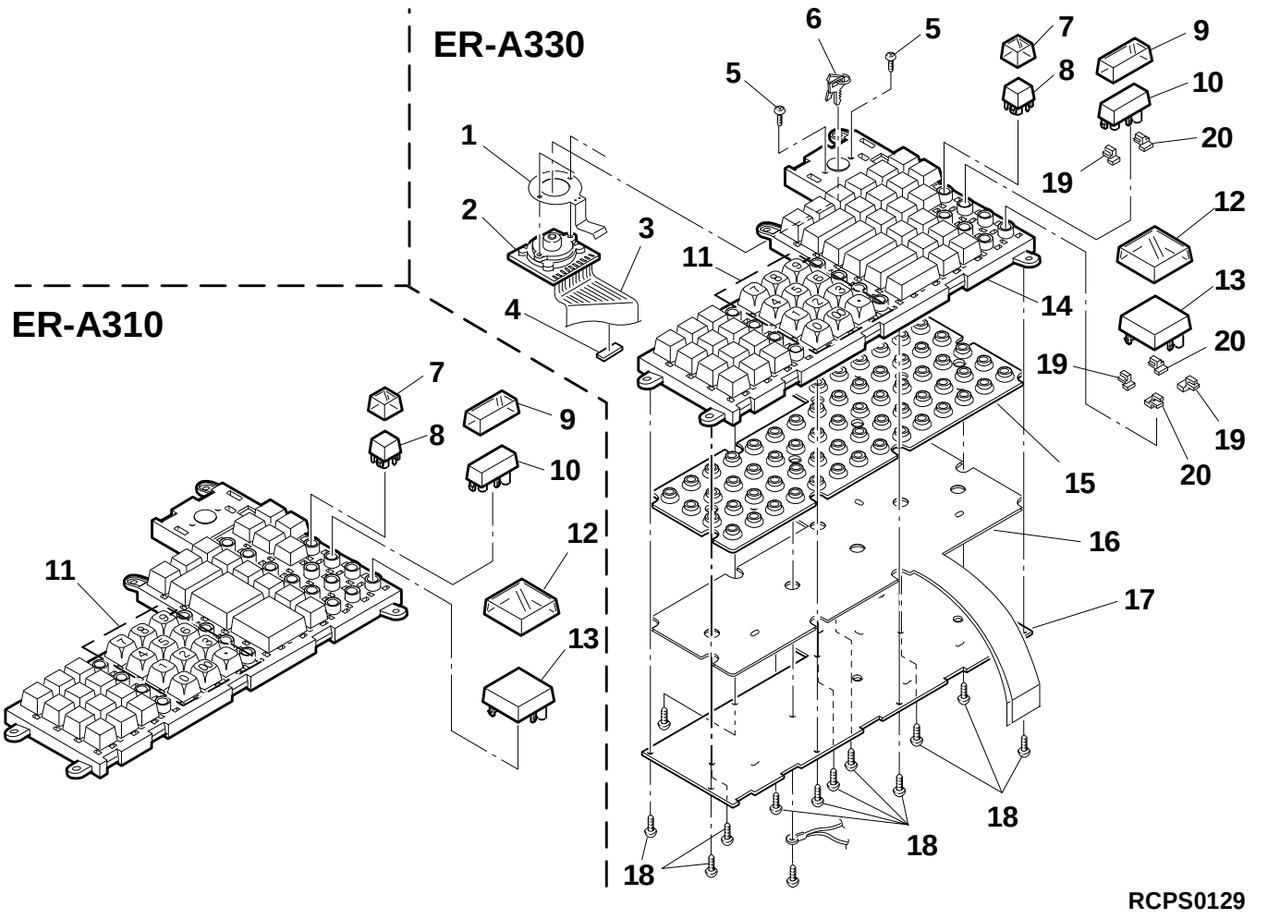
3 Keyboard unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	LANGQ7604BHZZ	AG	N	C	Mode sw earth angle
2	LKGIW0001BHZZ	AS		B	Mode key (Body)
3	QCNW-7804BHZZ	AL	N	C	Mode cable
4	PHOG-1060CCZZ	AA		C	Cushion
5	XBPSD30P08000	AA		C	Screw (3 X 8)
6	LKGIM7110BHZZ	AE		B	Master key (MA)
	LKGIM7111BHZZ	AE		B	Operator key (OP)
7	JKNBZ6897BHZZ	AG		C	Key cap (1 X 1)
8	JKNBZ6896BHZZ	AG		C	Key top (1 X 1)
9	JKNBZ6899BHZZ	AH		C	Key cap (1 X 2)
10	JKNBZ6898BHZZ	AH		C	Key top (1 X 2)
11	JKNBZ6905BHZZ	AF		C	Key top (0)
	JKNBZ6908BHZZ	AK		C	Key top (.)
	JKNBZ6911BHZZ	AK		C	Key top (1)
	JKNBZ6912BHZZ	AK		C	Key top (2)
	JKNBZ6913BHZZ	AK		C	Key top (3)
	JKNBZ6914BHZZ	AK		C	Key top (4)
	JKNBZ6915BHZZ	AK		C	Key top (5)
	JKNBZ6916BHZZ	AK		C	Key top (6)
	JKNBZ6917BHZZ	AK		C	Key top (7)
	JKNBZ6918BHZZ	AK		C	Key top (8)
	JKNBZ6919BHZZ	AK		C	Key top (9)
	JKNBZ6920BHZZ	AK		C	Key top (00)
12	JKNBZ6901BHZZ	AQ		C	Key cap (2 X 2)
13	JKNBZ6900BHZZ	AQ		C	Key top (2 X 2)
14	LFRM-6700BHZZ	BB	N	D	Key frame
15	PGUMM6725BHZZ	AZ	N	C	Key rubber
16	PSHEP6844BHZZ	BC	N	C	Key sheet unit
17	LPLTM6706BHZZ	AW	N	C	Key plate
18	XEBSD30P06000	AA		C	Screw (3 X 6)
19	LHLDZ6836BHZZ	AE		C	Holder R
20	LHLDZ6837BHZZ	AE		C	Holder L
101	CLABH7044BH01	AX	N	D	Key label unit [ER-A310]
	CLABH7044BH02	AW	N	D	Key label unit [ER-A330]
501	DUNTK5817BHZZ	BN	N	E	Keyboard unit [ER-A310]
	DUNTK5817BHSA	BN	N	E	Keyboard unit [ER-A330]

4 Packing material&Accessories

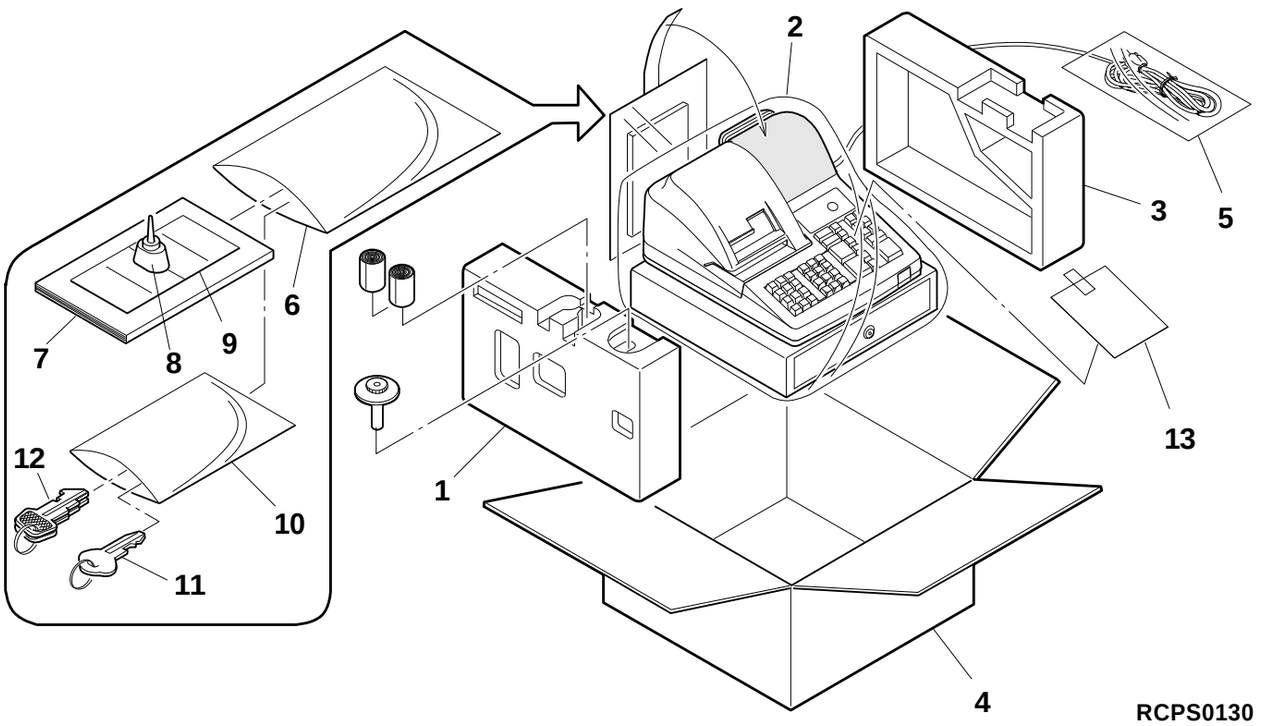
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	ER-A310	ER-A330
1	SPAKA8367BHZZ	AT	N	D	Packing add L	|	|
2	PSHEP6681BHZZ	AF		D	Packing sheet	|	|
3	SPAKA8366BHZZ	AT	N	D	Packing add R	|	|
4	SPAKC8368BHZZ	BA	N	D	Packing case [U.S.A]	|	
	SPAKC8368BHSA	BA	N	D	Packing case [U.S.A]		|
	SPAKC8376BHZZ	BA	N	D	Packing case [Canada]	|	
	SPAKC8376BHSA	BA	N	D	Packing case [Canada]		|
5	SSAKH4231CCZZ	AA		D	Vinyl bag (140 X 500mm)	|	|
6	SSAKH3015CCZZ	AA		D	Vinyl bag (200 X 300mm)	|	|
7	TINSE7360BHZZ	AT	N	D	Instruction book [U.S.A]	|	|
	TINSE7372BHZZ	AU	N	D	Instruction book [U.S.A]		|
	TINSK7363BHZZ	AT	N	D	Instruction book [Canada]	|	
	TINSK7373BHZZ	AU	N	D	Instruction book [Canada]		|
8	UINK-1001CCZZ	AK		S	Ink (5cc)	|	|
9	TCAUZ6697BHZZ	AC	N	D	Battery caution label	|	|
10	SSAKH3012CCZZ	AA		D	Vinyl bag (80 X 120mm)	|	|
11	LKGIM7331BHZZ	AE		B	Lock key (1pc)	|	|
12	LKGIM7110BHZZ	AE		B	Master key (MA)	|	|
	LKGIM7111BHZZ	AE		B	Operator key (OP)	|	|
13	TCADH6795BHZZ	AC		D	Caution card [U.S.A]	|	|
	TCADH6788BHZZ	AC		D	Caution card [Canada]	|	|
101	UBNDA6629BHZZ	AA		C	AC cord band (4mm X 200mm)(Green)	|	|

3 Keyboard unit



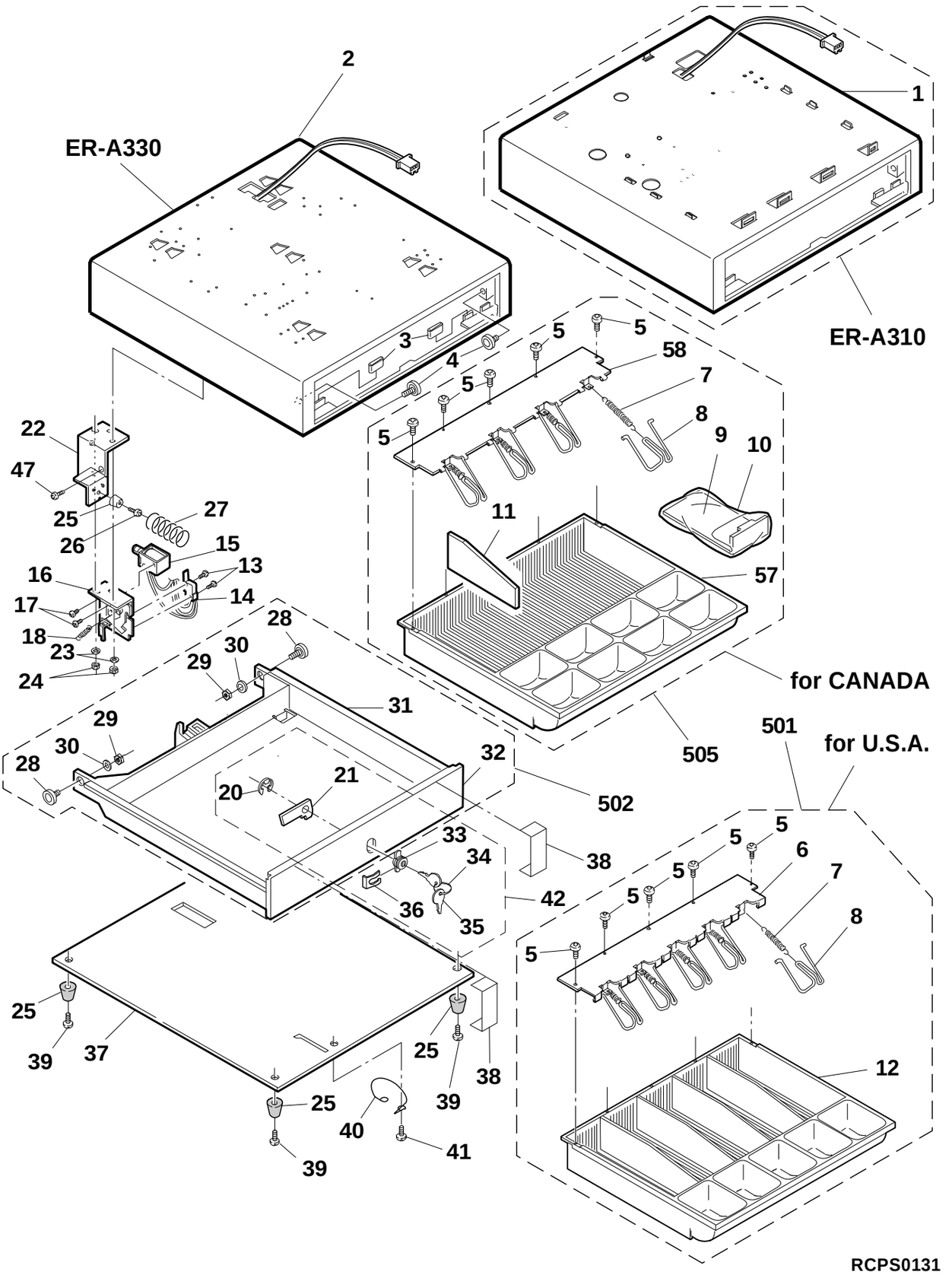
RCPS0129

4 Packing material&Accessories



RCPS0130

5 Drawer box unit(SK423type)



5 Drawer box unit(SK423type)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	ER-A310	ER-A330
1	CCABM7245BH01	BK	N	D	Cabinet frame unit [U.S.A]	|	
	CCABM7251BH02	BK	N	D	Cabinet frame unit [Canada]	|	
2	CCABM7247BH01	BK	N	D	Cabinet frame unit [U.S.A]		|
	CCABM7252BH02	BK	N	D	Cabinet frame unit [Canada]		|
3	PGUMM6695BHZZ	AE		C	Stopper gum	|	|
4	NROLP6650BHZZ	AP		C	Roller	|	|
5	XUBSD30P08000	AA		C	Screw (3 X 8)	|	|
6	LBRC-6666BHZZ	AQ		C	Bracket [U.S.A]	|	|
7	MSPRT6714BHZZ	AE		C	Bill spring	|	|
8	MLEVF6695BHZZ	AK		C	Bill lever	|	|
9	PSKR-6629BHZZ	AL		C	Bill separator [Canada]	|	|
10	SSAKA5004BHZZ	AA		D	Vinyl bag	|	|
11	PSKR-6628BHZZ	AG		C	Separator [Canada]	|	|
12	GCAS-6682BHZZ	AZ		D	Money case (5B/5C) [U.S.A]	|	|
13	LX-BZ6776BHZZ	AA		C	Screw (for micro sw)	|	|
14	QSW-M6872BHZZ	AR		B	Micro switch	|	|
15	CPLU-6647BH01	AY	N	B	Solenoid	|	|
16	CFRM-6683BH01	AW		D	Lock frame unit	|	|
17	LX-BZ6775BHZZ	AA		C	Screw (for solenoid)	|	|
18	MSPRT6713BHZZ	AD		C	Open lever spring	|	|
20	XRESJ50-06000	AA		C	E type ring (5mm)	|	|
21	MCAMM6633BHZA	AE		C	Lock cam	|	|
22	LFRM-6682BHZZ	AN		D	Bell frame	|	|
23	XWSSD40-10000	AA		C	Washer (4mm)	|	|
24	XNESD40-32000	AA		C	Nut (M4)	|	|
25	PGUMM6696BHZZ	AE		C	Gum leg	|	|
26	XHBSD30P12000	AA		C	Screw (3 X 12)	|	|
27	MSPRC6712BHZZ	AF		C	Push out spring	|	|
28	NROLP6650BHZZ	AP		C	Roller	|	|
29	XNESD60-50000	AA		C	Nut (M6)	|	|
30	XWSSD60-15000	AA		C	Washer (6mm)	|	|
31	GDRW-6680BHZZ	BE		D	Drawer case frame unit [U.S.A]	|	|
	GDRW-6678BHZZ	BF		D	Drawer case frame unit [Canada]	|	|
32	GCOVA7036BHZZ	AS		D	Front cover	|	|
33	LKGIW7330BHZZ	AY		B	Lock key (body)	|	|
34	PRNGT6637BHZZ	AA		C	Key ring	|	|
35	LKGIM7331BHZZ	AE		B	Lock key (1pc)	|	|
36	MSPRK6718BHZZ	AF		C	Lock key spring	|	|
37	LPLTM6674BH01	AX		D	Bottom plate [U.S.A]	|	|
	LPLTM6674BHZC	AY		D	Bottom plate [Canada]	|	|
38	SPAKA8255BHZZ	AC		D	Paper pad	|	|
39	XHBSD40P12000	AA		C	Screw (M4 X 12)	|	|
40	MSPRB6711BHZZ	AD		C	Earth spring	|	|
41	XHPSC30P08000	AA		C	Screw (3 X 8)	|	|
42	DUNT-1306BHZZ	AX		E	Lock key unit	|	|
57	GCAS-6678BHZZ	BC		D	Money case (4B/8C) [Canada]	|	|
58	LBRC-6663BHZZ	AQ		C	Bill bracket [Canada]	|	|
501	CCAS-6682BH01	BF		E	Money case unit (5B/5C) [U.S.A]	|	|
502	GDRW-6680BHZA	BE		E	Drawer case unit [U.S.A]	|	|
	GDRW-6678BHZA	BG		E	Drawer case unit [Canada]	|	|
503	CLOK-6676BH01	BH	N	E	Lock unit	|	|
504	CFRM-6682BH02	AQ		E	Bell frame unit (include No.22,26,27)	|	|
505	CCAS-6678BH01	BF		E	Money case unit (4B/8C) [Canada]	|	|
901	GBOXD7139BHZZ	BW	N	E	Drawer box unit [U.S.A]	|	
	GBOXD7140BHZZ	BW	N	E	Drawer box unit [U.S.A]		|
	GBOXD7144BHZZ	BV	N	E	Drawer box unit [Canada]	|	
	GBOXD7145BHZZ	BV	N	E	Drawer box unit [Canada]		|

6 Main PWB unit[ER-A310]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	VHDDSS133HV-1	AA		B	Diode (DSS133HV) [D3,7~17,24,29]
2	VHD1N4002G/-1	AA		B	Diode (1N4002G) [D6,27]
3	VHDPS102R//-1	AD		B	Diode (PS102R) [D4]
4	VRD-RC2EY100J	AA		C	Resistor (1/4W 10Ω ±5%) [R6]
5	VRD-RC2EY102G	AA		C	Resistor (1/4W 1.0KΩ ±2%) [R8]
6	VRD-RC2EY102J	AA		C	Resistor (1/4W 1.0KΩ ±5%) [R53,58,59,60,64,66,73-]
7	VRD-RC2EY104J	AA		C	Resistor (1/4W 100KΩ ±5%) [R5]
8	VRD-RC2EY105J	AA		C	Resistor (1/4W 1.0MΩ ±5%) [R100,101]
9	VRD-RC2EY300J	AA		C	Resistor (1/4W 47Ω ±5%) [R30~37]
10	VRD-RC2EY123J	AA		C	Resistor (1/4W 12KΩ ±5%) [R1,39,121,~130,78,79,131,132,133]
11	VRD-RC2EY153J	AA		C	Resistor (1/4W 15KΩ ±5%) [R54,55,61]
12	VRD-RC2EY183J	AA		C	Resistor (1/4W 18KΩ ±5%) [R69]
13	VRD-RC2EY221J	AA		C	Resistor (1/4W 220Ω ±5%) [R9,111~120]
14	VRD-RC2EY222J	AA		C	Resistor (1/4W 2.2KΩ ±5%) [R11,13,15,17,19,21,23,25,27,29,38]
15	VRD-RC2EY223J	AA		C	Resistor (1/4W 22KΩ ±5%) [R68,71]

6 Main PWB unit[ER-A310]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
16	VRD-RC2EY272J	AA		C	Resistor (1/4W 2.7KΩ ±5%) [R4]
17	VRD-RC2EY332J	AA		C	Resistor (1/4W 3.3KΩ ±5%) [R57,70]
18	VRD-RC2EY334J	AA		C	Resistor (1/4W 330KΩ ±5%) [R50,51]
19	VRD-RC2EY362G	AA		C	Resistor (1/4W 3.6KΩ ±2%) [R7]
20	VRD-RC2EY392J	AA		C	Resistor (1/4W 3.9KΩ ±5%) [R2]
21	VRD-RC2EY472J	AA		C	Resistor (1/4W 4.7KKΩ ±5%) [R63,65,67,85~96]
22	VRD-RC2EY563J	AA		C	Resistor (1/4W 56KΩ ±5%) [R3,40,52,102]
23	VHEMTZ18B//-1	AB		B	Zener diode (MTZ18B) [ZD2]
24	VHEMTZJ27A/-1	AB		B	Zener diode (MTZJ27A) [ZD1]
25	VHERD6.2EB2-1	AB		B	Zener diode (RD6.2EB2)(VHEMTZ6.2B/-1) [ZD5]
26	VHERD24EB2/-1	AB		B	Zener diode (RD24EB2)(VHEMTZJ24B/-1) [ZD29]
27	QFSHD2109AFZZ	AC		C	Fuse holder [F1]
28	VCQYNA1HM333K	AA		C	Capacitor (50WV 0.033μF) [C1]
29	VCEAGA1HW106M	AA		C	Capacitor (50WV 10μF) [C22]
30	VCEAGA1HW335M	AB		C	Capacitor (50WV 3.3μF) [C5]
31	VCEAGA1CW337M	AB		C	Capacitor (16WV 330μF) [C9,10]
32	VCKYPU1HB221K	AB		C	Capacitor (50WV 220pF) [C7]
33	VCEAGA1CW106M	AA		C	Capacitor (16WV 10μF) [C13,27]
34	VCCCPU1HH330J	AB		C	Capacitor (50WV 33pF) [C14]
35	VCCCPU1HH220J	AA		C	Capacitor (50WV 22PF) [C16]
36	VCEAGA1CW226M	AB		C	Capacitor (16WV 22μF) [C18]
37	VCKYPU1HB102K	AA		C	Capacitor (50WV 0.001μF) [C20,21,29,24]
38	VCKYPU1HB331K	AA		C	Capacitor (50WV 330pF) [C25,28]
39	VSDSC001-//-1	AA		B	Transistor (2SC945)(VS2SC3198-/-1) [Q3~13,22]
40	VSDSA001-//-1	AA		B	Transistor (2SA1266)(VS2SA1266-/-1) [Q23]
41	VS2SB926-S/TC	AD		B	Transistor (KTA1271)(VS2SA1271-/-1) [Q31,32,33]
42	VS2SB926-S/TC	AD		B	Transistor (2SB926-S9TC) [Q34~40]
43	RC-KZ1054CCZZ	AB		C	Capacitor (50WV 0.1μF) [C6,11,12,23,26,31,34]
44	RC-EZ106ARC1A	AD		C	Capacitor (10WV 10μF) [C19,13]
45	VCKYPU1HB332K	AA		C	Capacitor (50WV 3300pF) [C36]
46	VCKYPU1HB222K	AA		C	Capacitor (50WV 2200pF) [Vb]
47	VCKYPU1HB103K	AA		C	Capacitor (50WV 1.0μF) [C32]
48	VHD1D4B42//-1	AD		B	Diode (1D4B42)(VHDDI102/BH-1) [BD1]
49	VCEAGU1HW478M	AL		C	Capacitor (50WV 4700μF) [C2]
50	VCEAGA1HW337M	AE		C	Capacitor (50WV 330PF) [C4]
51	VCEAGU1CW108M	AD		C	Capacitor (16WV 1000μF) [C8]
52	VHPHDSP5621-1	AM	N	B	LED (7SEG 2dig) [FND1~5]
53	VS2SC3784-/-1	AD		B	Transistor (2SC3784) [Q14,17]
54	QCNCM1101CCZZ	AB		C	Connector (2pin)(QCNCM1101BHZZ) [CN1]
55	QCNCW7081BHZZ	AB		C	Connector (2P)(5267-02A)(Blue) [CN2]
56	QCNCW6882RC1A	AD		C	Connector (11pin)(QCNCW6882BH1A) [CN7]
57	QCNCW7118BH0H	AG	N	C	Connector (8pin)(5229-08CPB) [CN5]
58	QCNCW7118BH0I	BH		C	Connector (9pin)(5229-09CPB) [CN8]
59	QCNCW7201BH1E	AK	N	C	Connector (52806-1510) [CN15]
60	QCNW-7811BHZZ	AM	N	C	F-LED cable (18pin) [CN14]
61	VHIKID65003AP	AE		B	IC (KD65003AP) [IC5~7]
62	VHIMC34063AM1	AG		B	IC (MC34063AM1)(VHIKA34063A-1) [IC1]
63	VSKTD20601/-1	AK	N	B	Transistor (KTD2060) [Q19]
64	VSKTD14151/-1	AN	N	B	Transistor (KTD1415) [Q1]
65	VSKTD1414//-1	AL		B	Transistor (KTD1414) [Q2]
! 66	QFS-B0323QCZZ	AC		A	Fuse (2.0A 125V) [F1]
67	RALMB6646BHZZ	AQ		B	Buzzer [BZ1]
68	PRDAF6666BHZZ	AN	N	C	Heat sink [Heat sink]
69	LX-BZ6644RCZZ	AA		C	Screw (3.5 × 8S) [Heat sink]
70	XBBSD30P06000	AA		C	Screw (3 × 6) [Q1]
71	VRS-RE3DA301J	AB		C	Resistor (2W 300Ω ±5%) [R62]
72	RMPTC8563QCJB	AC		B	Resistor array (56KΩ × 8) [RA2]
73	VSKSB601-//-1	AN		B	Transistor (KSB601) [Q18]
74	QCNCM7057RCZZ	AB		C	Connector (3pin)(QCNCM7057BHZZ) [CN11]
75	VHI4AC16///-1	AK		B	IC (4AC16) [IC9,10,11]
76	RCRSP6676RCZZ	AG		B	Crystal (32.768KHz) [X1]
77	RCRM-7001BHZZ	AH	N	B	Crystal (4.19MHz) [X2]
78	VHIMC74HC373N	AK		B	IC (MC74HC373)(VHIG74HC373-1) [IC3]
79	VHILH52B256N9	AW		B	IC (LH52B256N9)(VHIG76C256F70) [IC4]
80	RCILC6647RCZZ	AE		C	Coil (RCH-110)(RCILC6647BHZZ) [L1]
81	VHID78045F023	AZ	N	B	IC (D78045F023) [IC2]
82	QCNCW7200BH2H	AL	N	C	Connector (52025-2810) [CN12]
83	RMPTC8123QCJB	AB		B	Resistor array (12KΩ × 8) [RA1]
84	QCNW-7812BHZZ	AE	N	C	GND wire
85	QCNW-7813BHZZ	AF	N	C	GND wire
86	QCNW-7814BHZZ	AE	N	C	GND wire
87	VCKYPU1HB222K	AA		C	Capacitor (50WV 2200pF) [R50]
901	CPWBF7503BH01	BV	N	E	Main PWB unit

7 Main PWB unit[ER-A330]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	VHDDSS133HV-1	AA		B	Diode (DSS133HV)	[D3,7~17,24]
2	VHD1N4002G/-1	AA		B	Diode (1N4002G)	[D6,28,29]
3	VHDPS102R//-1	AD		B	Diode (PS102R)	[D4]
4	VRD-RC2EY100J	AA		C	Resistor (1/4W 10Ω ±5%)	[R6]
5	VRD-RC2EY102G	AA		C	Resistor (1/4W 1.0KΩ ±2%)	[R8]
6	VRD-RC2EY102J	AA		C	Resistor (1/4W 1.0KΩ ±5%)	[R53,58,59,76,77,133]
7	VRD-RC2EY104J	AA		C	Resistor (1/4W 100KΩ ±5%)	[R5]
8	VRD-RC2EY105J	AA		C	Resistor (1/4W 1.0MΩ ±5%)	[R93,101]
9	VRD-RC2EY300J	AA		C	Resistor (1/4W 30Ω ±5%)	[R30~37]
10	VRD-RC2EY123J	AA		C	Resistor (1/4W 12KΩ ±5%)	[R1,39,121~130,87,88,131,132,134]
11	VRD-RC2EY153J	AA		C	Resistor (1/4W 15KΩ ±5%)	[R54,55]
12	VRD-RC2EY221J	AA		C	Resistor (1/4W 220Ω ±5%)	[R9,111~120]
13	VRD-RC2EY222J	AA		C	Resistor (1/4W 2.2KΩ ±5%)	[R11,13,15,17,19,21,23,25,27,29,38]
14	VRD-RC2EY223J	AA		C	Resistor (1/4W 22KΩ ±5%)	[R68,71,80]
15	VRD-RC2EY272J	AA		C	Resistor (1/4W 2.7KΩ ±5%)	[R4,79,81,82,84]
16	VRD-RC2EY334J	AA		C	Resistor (1/4W 330KΩ ±5%)	[R50,51]
17	VRD-RC2EY362G	AA		C	Resistor (1/4W 3.6KΩ ±2%)	[R7]
18	VRD-RC2EY392J	AA		C	Resistor (1/4W 3.9KΩ ±5%)	[R2]
19	VRD-RC2EY471J	AA		C	Resistor (1/4W 470Ω ±5%)	[R78]
20	VRD-RC2EY472J	AA		C	Resistor (1/4W 4.7KΩ ±5%)	[R57,92]
21	VRD-RC2EY563J	AA		C	Resistor (1/4W 56KΩ ±5%)	[R3,40,52,102]
22	VHEMTZ15A//-1	AB		B	Zener diode (MTZ15A)	[ZD2]
23	VHEMTZ20D//-1	AA		B	Zener diode (MTZ20D)	[ZD1]
24	VHERD6.2EB2-1	AB		B	Zener diode (RD6.2EB2)(VHEMTZ6.2B/-1)	[ZD5]
25	QFSHD2109AFZZ	AC		C	Fuse holder	[F1]
26	VCQYNA1HM333K	AA		C	Capacitor (50WV 0.033μF)	[C1]
27	VCEAGA1HW335M	AB		C	Capacitor (50WV 3.3μF)	[C5]
28	VCEAGA1CW337M	AB		C	Capacitor (16WV 330μF)	[C9,10]
29	VCKYPU1HB221K	AB		C	Capacitor (50WV 220pF)	[C7,32]
30	RC-Z1N104RCZZ	AA		C	Capacitor (12WV 0.1μF)(RC-Z1N104BHZZ)	[C12,23,26]
31	VCEAGA1CW106M	AA		C	Capacitor (16WV 10μF)	[C27,29,13]
32	VCCCPU1HH330J	AB		C	Capacitor (50WV 33pF)	[C14]
33	VCCCPU1HH220J	AA		C	Capacitor (50WV 22pF)	[C16]
34	VCEAGA1CW226M	AB		C	Capacitor (16WV 22μF)	[C18]
35	VCKYPU1HB102K	AA		C	Capacitor (50WV 0.001μF)	[C31,24]
36	VCKYPU1HB331K	AA		C	Capacitor (50WV 330pF)	[C25,28]
37	VSDSC001-//-1	AA		B	Transistor(2SC001)(KTC3198GR)(VS2SC3198-/-1)	[Q3~13,16]
38	VS2SB926-S/TC	AD		B	Transistor (2SB926-S)	[Q18,19,20,34~40]
39	VS2SB926-S/TC	AD		B	Transistor(KTA1271)(VS2SA1271-/-1)	[Q31,32,33]
40	RC-KZ1054CCZZ	AB		C	Capacitor (50WV 0.1μF)	[C6,11,34,35,37]
41	RC-EZ106ARC1A	AD		C	Capacitor (10WV 10μF)	[C19]
42	VCEAGU1HW105M	AA		C	Capacitor (50WV 1.0μF)	[C30]
43	VCKYPU1HB332K	AA		C	Capacitor (50WV 3300pF)	[C36]
44	VHD1D4B42//-1	AD		B	Diode (1D4B42)(VHDD1102/BH-1)	[BD1]
45	VCEAGU1HW478M	AL		C	Capacitor (50WV 4700μF)	[C2]
46	VCEAGA1HW337M	AE		C	Capacitor (50WV 33pF)	[C4]
47	VCEAGU1CW108M	AD		C	Capacitor (16WV 1000μF)	[C8]
48	VHPHDSP5621-1	AM	N	B	LED (7SEG 2dig)	[FND1~5]
49	VS2SC3784-/-1	AD		B	Transistor (2SC3784)	[Q21]
50	QCNCM1101CCZZ	AB		C	Connector (2pin)(QCNCM1101CCZZ)	[CN1]
51	QCNCW7081BHZZ	AB		C	Connector (2P)(5267-02A)(Blue)	[CN2]
52	QCNCW6882RC1A	AD		C	Connector (11pin)(QCNCW6882BH1A)	[CN7]
53	QCNCW7118BH0H	AG	N	C	Connector (8pin)(5229-08CPB)	[CN5]
54	QCNCW7118BH0I	BH		C	Connector (9pin)(5229-09CPB)	[CN8]
55	QCNCW7201BH1E	AK	N	C	Connector (52806-1510)	[CN15]
56	QCNW-7811BHZZ	AM	N	C	F-LED cable (18pin)	[CN14]
57	VHIKID65003AP	AE		B	IC (KD65003AP)	[IC5~9]
58	VHIMC34063AM1	AG		B	IC (MC34063AM1)(VHIKA34063A-1)	[IC1]
59	VSKTD14151/-1	AN	N	B	Transistor (KTD1415)	[Q1]
60	VSKTD1414//-1	AL		B	Transistor (KTD1414)	[Q2]
61	VHID78045F028	AZ	N	B	IC (D78045F028)	[IC2]
! 62	QFS-B0323QCZZ	AC		A	Fuse (UL125V 2A)	[F1]
63	RALMB6646BHZZ	AQ		B	Buzzer	[BZ1]
64	PRDAF6666BHZZ	AN	N	C	Heat sink	
65	LX-BZ6644RCZZ	AA		C	Screw (3.5 × 8S)(LX-BZ6644BHZZ)	[Heat sink]
66	XBBSD30P06000	AA		C	Screw (3 × 6)	[Q1]
67	VRS-RE3DA221J	AB		C	Resistor (2W 220Ω ±5%)	[R83,85]
68	RMPTC8563QCJB	AC		B	Resistor array (56KΩ × 8)	[RA2]
69	QCNCM7057RCZZ	AB		C	Connector (3pin)(QCNCM7057BHZZ)	[CN11]
70	VS2SB601-//-1	AM		B	Transistor (2SB601)(VSKSB601-//-1)	[Q17]
71	RCRSP6676RCZZ	AG		B	Crystal (32.768KHz)	[X1]
72	RCRM-7001BHZZ	AH	N	B	Crystal (4.19MHz)	[X2]
73	VHIMC74HC373N	AK		B	IC (MC74HC373)(VHIG74HC373-1)	[IC3]
74	VHILH52B256N9	AW		B	S-RAM (LH52B256N9)(VHIG76C256F70)	[IC4]
75	QCNCW7200BH3A	AA	N	C	Connector (52045-3110)	[CN12]
76	RCILC6647RCZZ	AE		C	Coil (RCH-110)(RCILC6647BHZZ)	[L1]
77	RMPTC8123QCJB	AB		B	Resistor array (12KΩ × 8)	[RA1]
78	VRD-RC2EY000J	AA		C	Resistor (1/4W 0Ω ±5%)	[S-RAM]
79	QCNW-7805BHZZ	AF		C	GND wire (Main-K/B-Dr)	
80	QCNW-7824BHZZ	AE	N	C	GND wire	

7 Main PWB unit[ER-A330]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
81	VCEAGU1CW106M	AA		C	Capacitor (16WV 10μF) [C26]
901	CPWBF7505BH01	BU	N	E	Main PWB unit

8 Pop-up PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	VRD-RC2EY270J	AA		C	(1/4W 27Ω ±5%) [R10,12,14,16,18,20,22,24]
2	QCNCW7202BH1E	AK	N	C	Connector (52807-1510) [CN1]
3	VHPHDSP5621-1	AM	N	B	LED (7SEG 2dig) [FND6~9]
901	CPWBF7504BH01	BC	N	E	Pop up PWB unit

9 Articles for consumption

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	ER-A310	ER-A330
1	DPAPR1006CSZZ	AR		S	Roll paper (5rolls)	|	|
2	NROLR6652RCZZ	AZ		S	Ink roller	|	
3	NROLR6638RCZZ	AY		S	Ink roller (Purple)		|
4	UINK-1001CCZZ	AK		S	Ink (5cc)	|	|

10 Service route options

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	ER-A310	ER-A330
1	LKGIM7113RCZZ	AK		S	Service key	|	|
2	LKGIM7126RCZZ	AL		S	Grip cover (OP key)	|	|
3	GCOVH7126BHZZ	BE	N	D	Drip-proof key cover	|	|
4	DKIT-8666BHZZ	BL	N	S	Shield plate kit (include No.101~103)		|
5	GCOVH7127BHZZ	BA	N	D	Mode switch cover	|	|
101	LCHSM6705BHZZ	BG	N	C	Main chassis		|
102	TLABH7054BHZZ	AD	N	D	Caution card		|
103	LBSHC0004BHZZ	AC		C	Clamp		|

■ Index

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
[C]					
CCABM7245BH01	5- 1	BK	N	D	
CCABM7247BH01	5- 2	BK	N	D	
CCABM7251BH02	5- 1	BK	N	D	
CCABM7252BH02	5- 2	BK	N	D	
CCAS-6678BH01	5- 505	BF		E	
CCAS-6682BH01	5- 501	BF		E	
CFRM-6682BH02	5- 504	AQ		E	
CFRM-6683BH01	5- 16	AW		D	
CLABH7044BH01	3- 101	AX	N	D	
CLABH7044BH02	3- 101	AW	N	D	
CLOK-6676BH01	5- 503	BH	N	E	
CPLU-6647BH01	5- 15	AY	N	B	
CPWBF7503BH01	1- 20	BV	N	E	
"	6- 901	BV	N	E	
CPWBF7504BH01	1- 9	BC	N	E	
"	2- 7	BC	N	E	
"	8- 901	BC	N	E	
CPWBF7505BH01	2- 18	BU	N	E	
"	7- 901	BU	N	E	
[D]					
DKIT-8666BHZZ	10- 4	BL	N	S	
DPAPR1006CSZZ	9- 1	AR		S	
DUNT-1306BHZZ	5- 42	AX		E	
DUNTK5817BHSA	3- 501	BN	N	E	
DUNTK5817BHZZ	3- 501	BN	N	E	
[G]					
GBOXD7139BHZZ	5- 901	BW	N	E	
GBOXD7140BHZZ	5- 901	BW	N	E	
GBOXD7144BHZZ	5- 901	BV	N	E	
GBOXD7145BHZZ	5- 901	BV	N	E	
GCAB-7237BHZZ	1- 8	AM	N	D	
"	2- 6	AM	N	D	
GCABA7239BHZZ	2- 19	BB	N	D	
GCABB7236BHZA	2- 14	BC	N	D	
GCABB7236BHZZ	1- 16	BC	N	D	
GCAS-6678BHZZ	5- 57	BC		D	
GCAS-6682BHZZ	5- 12	AZ		D	
GCOVA7036BHZZ	5- 32	AS		D	
GCOVA7123BHZZ	1- 1	AY	N	D	
GCOVA7128BHZZ	2- 1	AY	N	D	
GCOVH7124BHZZ	1- 5	AF	N	D	
"	2- 4	AF	N	D	
GCOVH7125BHZZ	1- 21	AP	N	D	
GCOVH7126BHZZ	10- 3	BE	N	D	
GCOVH7127BHZZ	10- 5	BA	N	D	
GDRW-6678BHZA	5- 502	BG		E	
GDRW-6678BHZZ	5- 31	BF		D	
GDRW-6680BHZA	5- 502	BE		E	
GDRW-6680BHZZ	5- 31	BE		D	
GFTAF6921BHZZ	1- 17	AG	N	D	
"	2- 15	AG	N	D	
[H]					
HDECP6847BHSA	2- 12	AM	N	D	
HDECP6847BHZZ	1- 14	AM	N	D	
[J]					
JKNBZ6896BHZZ	3- 8	AG		C	
JKNBZ6897BHZZ	3- 7	AG		C	
JKNBZ6898BHZZ	3- 10	AH		C	
JKNBZ6899BHZZ	3- 9	AH		C	
JKNBZ6900BHZZ	3- 13	AQ		C	
JKNBZ6901BHZZ	3- 12	AQ		C	
JKNBZ6905BHZZ	3- 11	AF		C	
JKNBZ6908BHZZ	3- 11	AK		C	
JKNBZ6911BHZZ	3- 11	AK		C	
JKNBZ6912BHZZ	3- 11	AK		C	
JKNBZ6913BHZZ	3- 11	AK		C	
JKNBZ6914BHZZ	3- 11	AK		C	
JKNBZ6915BHZZ	3- 11	AK		C	
JKNBZ6916BHZZ	3- 11	AK		C	
JKNBZ6917BHZZ	3- 11	AK		C	
JKNBZ6918BHZZ	3- 11	AK		C	
JKNBZ6919BHZZ	3- 11	AK		C	
JKNBZ6920BHZZ	3- 11	AK		C	
[K]					
KI-OB6780RCZZ	1- 34	BW	N	E	
KI-OB6783RCZZ	2- 31	BZ	N	E	
[L]					
LANGQ7604BHZZ	3- 1	AG	N	C	
LBNDJ2003SCZZ	1- 47	AA		C	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
LBNDJ2003SCZZ	2- 32	AA		C	
LBRC-6663BHZZ	5- 58	AQ		C	
LBRC-6666BHZZ	5- 6	AQ		C	
LBSHC0004BHZZ	10- 103	AC		C	
LCHSM6705BHZZ	10- 101	BG	N	C	
LFRM-6682BHZZ	5- 22	AN		D	
LFRM-6700BHZZ	3- 14	BB	N	D	
LHLDZ1017ACZZ	1- 28	AC		C	
"	2- 28	AC		C	
LHLDZ6836BHZZ	3- 19	AE		C	
LHLDZ6837BHZZ	3- 20	AE		C	
LHLDZ6840BHZZ	1- 31	AL	N	C	
LKGIM7110BHZZ	3- 6	AE		B	
"	4- 12	AE		B	
LKGIM7111BHZZ	3- 6	AE		B	
"	4- 12	AE		B	
LKGIM7113RCZZ	10- 1	AK		S	
LKGIM7126RCZZ	10- 2	AL		S	
LKGIM7331BHZZ	4- 11	AE		B	
"	5- 35	AE		B	
LKGIW0001BHZZ	3- 2	AS		B	
LKGIW7330BHZZ	5- 33	AY		B	
LPLTM6674BHZC	5- 37	AY		D	
LPLTM6674BH01	5- 37	AX		D	
LPLTM6706BHZZ	3- 17	AW	N	C	
LPLTP6713BHZZ	1- 2	AL	N	C	
LX-BZ6644RCZZ	6- 69	AA		C	
"	7- 65	AA		C	
LX-BZ6755BHZZ	2- 35	AB		C	
LX-BZ6775BHZZ	5- 17	AA		C	
LX-BZ6776BHZZ	5- 13	AA		C	
LX-BZ6781BHZZ	1- 23	AB		C	
"	2- 36	AB		C	
LX-BZ6788BHZZ	1- 3	AD	N	C	
"	2- 3	AD	N	C	
LX-HZ0056BHZZ	1- 39	AA		C	
[M]					
MCAMM6633BHZA	5- 21	AE		C	
MLEVF6695BHZZ	5- 8	AK		C	
MSPRB6711BHZZ	5- 40	AD		C	
MSPRC6712BHZZ	5- 27	AF		C	
MSPRK6718BHZZ	5- 36	AF		C	
MSPRT6713BHZZ	5- 18	AD		C	
MSPRT6714BHZZ	5- 7	AE		C	
[N]					
NROLP6650BHZZ	5- 4	AP		C	
"	5- 28	AP		C	
NROLP6651BHZZ	1- 6	AD		C	
NROLR6638RCZZ	9- 3	AY		S	
NROLR6652RCZZ	9- 2	AZ		S	
[P]					
PCUSG1220BHZZ	2- 29	AE		C	
PCUSG7024BHZZ	1- 32	AE	N	C	
PCUT-6654BHZZ	1- 4	AE	N	C	
"	2- 2	AE	N	C	
PFILW6961BHZZ	1- 11	AP	N	D	
"	2- 9	AP	N	D	
PFILW6962BHZZ	1- 7	AU	N	D	
"	2- 5	AU	N	D	
PGUMM6695BHZZ	5- 3	AE		C	
PGUMM6696BHZZ	5- 25	AE		C	
PGUMM6725BHZZ	3- 15	AZ	N	C	
PGUMM6726BHZZ	1- 35	AE	N	C	
PHOG-1060CCZZ	3- 4	AA		C	
PRDAF6666BHZZ	6- 68	AN	N	C	
"	7- 64	AN	N	C	
PRNGT6637BHZZ	5- 34	AA		C	
PSHEP6681BHZZ	4- 2	AF		D	
PSHEP6844BHZZ	3- 16	BC	N	C	
PSKR-6628BHZZ	5- 11	AG		C	
PSKR-6629BHZZ	5- 9	AL		C	
PSTM-6658RC01	2- 34	AR		C	
PSTM-6805RCZZ	1- 37	AT	N	C	
[Q]					
QACCD8411QCZZ	1- 25	AN		B	
"	2- 23	AN		B	
QCNCM1101CCZZ	6- 54	AB		C	
"	7- 50	AB		C	
QCNCM7057RCZZ	6- 74	AB		C	
"	7- 69	AB		C	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
QCNCW6882RC1A	6- 56	AD		C	
"	7- 52	AD		C	
QCNCW7081BHZZ	6- 55	AB		C	
"	7- 51	AB		C	
QCNCW7118BH0H	6- 57	AG	N	C	
"	7- 53	AG	N	C	
QCNCW7118BH0I	6- 58	BH		C	
"	7- 54	BH		C	
QCNCW7200BH2H	6- 82	AL	N	C	
QCNCW7200BH3A	7- 75	AA	N	C	
QCNCW7201BH1E	6- 59	AK	N	C	
"	7- 55	AK	N	C	
QCNCW7202BH1E	8- 2	AK	N	C	
QCNW-7451BHZZ	1- 46	AG		C	
"	2- 43	AG		C	
QCNW-7804BHZZ	3- 3	AL	N	C	
QCNW-7805BHZZ	2- 17	AF	N	C	
"	7- 79	AF		C	
QCNW-7806BHZZ	1- 44	AN	N	C	
QCNW-7807BHZZ	2- 41	AN	N	C	
QCNW-7808BHZZ	1- 36	AF	N	C	
QCNW-7809BHZZ	2- 33	AH		C	
QCNW-7810BHZZ	1- 19	AG	N	C	
QCNW-7811BHZZ	6- 60	AM	N	C	
"	7- 56	AM	N	C	
QCNW-7812BHZZ	6- 84	AE	N	C	
QCNW-7813BHZZ	6- 85	AF	N	C	
QCNW-7814BHZZ	6- 86	AE	N	C	
QCNW-7815BHZZ	1- 10	AR	N	C	
"	2- 8	AR	N	C	
QCNW-7816BHZZ	1- 45	AR	N	C	
QCNW-7817BHZZ	2- 42	AF	N	C	
QCNW-7823BHZZ	1- 30	AE	N	C	
QCNW-7824BHZZ	7- 80	AE	N	C	
QFS-B0323QCZZ	6- 66	AC		A	
"	7- 62	AC		A	
QFSHD2109AFZZ	6- 27	AC		C	
"	7- 25	AC		C	
QSW-M6872BHZZ	5- 14	AR		B	
QTANZ1362CCZZ	1- 42	AA		C	
"	2- 39	AA		C	
QTANZ1363CCZZ	1- 41	AA		C	
"	2- 37	AA		C	
QTANZ6641BHZZ	1- 43	AC		C	
"	2- 40	AC		C	
QTANZ6657BHZZ	1- 40	AD	N	C	
"	2- 38	AD	N	C	
[R]					
RALMB6646BHZZ	6- 67	AQ		B	
"	7- 63	AQ		B	
RC-EZ106ARC1A	6- 44	AD		C	
"	7- 41	AD		C	
RC-KZ1054CCZZ	6- 43	AB		C	
"	7- 40	AB		C	
RC-Z1N104RCZZ	7- 30	AA		C	
RCILC6647RCZZ	6- 80	AE		C	
"	7- 76	AE		C	
RCORF6698BHZZ	2- 27	AR		C	
RCRM-7001BHZZ	6- 77	AH	N	B	
"	7- 72	AH	N	B	
RCRSP6676RCZZ	6- 76	AG		B	
"	7- 71	AG		B	
RMPTC8123QCJB	6- 83	AB		B	
"	7- 77	AB		B	
RMPTC8563QCJB	6- 72	AC		B	
"	7- 68	AC		B	
RTRNP6889BHZZ	1- 27	BC	N	B	
RTRNP9516BHZZ	2- 25	BD	N	B	
[S]					
SPAKA8255BHZZ	5- 38	AC		D	
SPAKA8366BHZZ	4- 3	AT	N	D	
SPAKA8367BHZZ	4- 1	AT	N	D	
SPAKC8368BHSA	4- 4	BA	N	D	
SPAKC8368BHZZ	4- 4	BA	N	D	
SPAKC8376BHSA	4- 4	BA	N	D	
SPAKC8376BHZZ	4- 4	BA	N	D	
SSAKA5004BHZZ	5- 10	AA		D	
SSAKH3012CCZZ	4- 10	AA		D	
SSAKH3015CCZZ	4- 6	AA		D	
SSAKH4231CCZZ	4- 5	AA		D	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
[T]					
TCADH6788BHZZ	4- 13	AC		D	
TCADH6795BHZZ	4- 13	AC		D	
TCAUZ6684BHZZ	1- 15	AD		D	
"	2- 13	AD		D	
TCAUZ6685BHZA	1- 15	AA		D	
"	2- 13	AA		D	
TCAUZ6697BHZZ	4- 9	AC	N	D	
TINSE7360BHZZ	4- 7	AT	N	D	
TINSE7372BHZZ	4- 7	AU	N	D	
TINSK7363BHZZ	4- 7	AT	N	D	
TINSK7373BHZZ	4- 7	AU	N	D	
TLABH7054BHZZ	10- 102	AD	N	D	
[U]					
UBNDA6629BHZZ	4- 101	AA		C	
UINK-1001CCZZ	4- 8	AK		S	
"	9- 4	AK		S	
[V]					
VCCCPU1HH220J	6- 35	AA		C	
"	7- 33	AA		C	
VCCCPU1HH330J	6- 34	AB		C	
"	7- 32	AB		C	
VCEAGA1CW106M	6- 33	AA		C	
"	7- 31	AA		C	
VCEAGA1CW226M	6- 36	AB		C	
"	7- 34	AB		C	
VCEAGA1CW337M	6- 31	AB		C	
"	7- 28	AB		C	
VCEAGA1HW106M	6- 29	AA		C	
VCEAGA1HW335M	6- 30	AB		C	
"	7- 27	AB		C	
VCEAGA1HW337M	6- 50	AE		C	
"	7- 46	AE		C	
VCEAGU1CW106M	7- 81	AA		C	
VCEAGU1CW108M	6- 51	AD		C	
"	7- 47	AD		C	
VCEAGU1HW105M	7- 42	AA		C	
VCEAGU1HW478M	6- 49	AL		C	
"	7- 45	AL		C	
VCKYPU1HB102K	6- 37	AA		C	
"	7- 35	AA		C	
VCKYPU1HB103K	6- 47	AA		C	
VCKYPU1HB221K	6- 32	AB		C	
"	7- 29	AB		C	
VCKYPU1HB222K	6- 46	AA		C	
"	6- 87	AA		C	
VCKYPU1HB331K	6- 38	AA		C	
"	7- 36	AA		C	
VCKYPU1HB332K	6- 45	AA		C	
"	7- 43	AA		C	
VCQYNA1HM333K	6- 28	AA		C	
"	7- 26	AA		C	
VHDDSS133HV-1	6- 1	AA		B	
"	7- 1	AA		B	
VHDPS102R//-1	6- 3	AD		B	
"	7- 3	AD		B	
VHD1D4B42//-1	6- 48	AD		B	
"	7- 44	AD		B	
VHD1N4002G/-1	6- 2	AA		B	
"	7- 2	AA		B	
VHEMTZJ27A/-1	6- 24	AB		B	
VHEMTZ15A//-1	7- 22	AB		B	
VHEMTZ18B//-1	6- 23	AB		B	
VHEMTZ20D//-1	7- 23	AA		B	
VHERD24EB2/-1	6- 26	AB		B	
VHERD6.2EB2-1	6- 25	AB		B	
"	7- 24	AB		B	
VHID78045F028	7- 61	AZ	N	B	
VHID78045F023	6- 81	AZ	N	B	
VHIKID65003AP	6- 61	AE		B	
"	7- 57	AE		B	
VHILH52B256N9	6- 79	AW		B	
"	7- 74	AW		B	
VHIMC34063AM1	6- 62	AG		B	
"	7- 58	AG		B	
VHIMC74HC373N	6- 78	AK		B	
"	7- 73	AK		B	
VHI4AC16///-1	6- 75	AK		B	
VHPHDSP5621-1	6- 52	AM	N	B	
"	7- 48	AM	N	B	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
VHPHDSP5621-1	8- 3	AM	N	B	
VRD-RC2EY000J	7- 78	AA		C	
VRD-RC2EY100J	6- 4	AA		C	
"	7- 4	AA		C	
VRD-RC2EY102G	6- 5	AA		C	
"	7- 5	AA		C	
VRD-RC2EY102J	6- 6	AA		C	
"	7- 6	AA		C	
VRD-RC2EY104J	6- 7	AA		C	
"	7- 7	AA		C	
VRD-RC2EY105J	6- 8	AA		C	
"	7- 8	AA		C	
VRD-RC2EY123J	6- 10	AA		C	
"	7- 10	AA		C	
VRD-RC2EY153J	6- 11	AA		C	
"	7- 11	AA		C	
VRD-RC2EY183J	6- 12	AA		C	
VRD-RC2EY221J	6- 13	AA		C	
"	7- 12	AA		C	
VRD-RC2EY222J	6- 14	AA		C	
"	7- 13	AA		C	
VRD-RC2EY223J	6- 15	AA		C	
"	7- 14	AA		C	
VRD-RC2EY270J	8- 1	AA		C	
VRD-RC2EY272J	6- 16	AA		C	
"	7- 15	AA		C	
VRD-RC2EY300J	6- 9	AA		C	
"	7- 9	AA		C	
VRD-RC2EY332J	6- 17	AA		C	
VRD-RC2EY334J	6- 18	AA		C	
"	7- 16	AA		C	
VRD-RC2EY362G	6- 19	AA		C	
"	7- 17	AA		C	
VRD-RC2EY392J	6- 20	AA		C	
"	7- 18	AA		C	
VRD-RC2EY471J	7- 19	AA		C	
VRD-RC2EY472J	6- 21	AA		C	
"	7- 20	AA		C	
VRD-RC2EY563J	6- 22	AA		C	
"	7- 21	AA		C	
VRS-RE3DA221J	7- 67	AB		C	
VRS-RE3DA301J	6- 71	AB		C	
VSDSA001-//-1	6- 40	AA		B	
VSDSC001-//-1	6- 39	AA		B	
"	7- 37	AA		B	
VSKSB601-//-1	6- 73	AN		B	
VSKTD1414//-1	6- 65	AL		B	
"	7- 60	AL		B	
VSKTD14151/-1	6- 64	AN	N	B	
"	7- 59	AN	N	B	
VSKTD20601/-1	6- 63	AK	N	B	
VS2SB601-//-1	7- 70	AM		B	
VS2SB926-S/TC	6- 41	AD		B	
"	6- 42	AD		B	
"	7- 38	AD		B	
"	7- 39	AD		B	
VS2SC3784-/-1	6- 53	AD		B	
"	7- 49	AD		B	
[X]					
XBBSC30P08000	1- 13	AA		C	
"	2- 11	AA		C	
XBBSD30P06000	6- 70	AA		C	
"	7- 66	AA		C	
XBPBZ40P08K00	1- 24	AA		C	
"	2- 22	AA		C	
XBPSD30P08000	3- 5	AA		C	
XBPSD30P10KS0	1- 38	AB		C	
"	2- 30	AB		C	
XEBSD20P06000	1- 48	AA		C	
XEBSD30P06000	3- 18	AA		C	
XEBSD30P08000	1- 18	AA		C	
"	2- 16	AA		C	
XHBSD30P08000	2- 21	AA		C	
XHBSD30P12000	5- 26	AA		C	
XHBSD40P06000	1- 29	AA		C	
XHBSD40P12000	5- 39	AA		C	
XHPSC30P08000	5- 41	AA		C	
XHPSD30P06K00	1- 12	AA		C	
"	2- 10	AA		C	
XJPSD30P12X00	1- 33	AB		C	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
XJPSD30P16X00	1- 26	AB		C	
"	2- 24	AB		C	
XNESD30-24000	1- 22	AA		C	
"	2- 20	AA		C	
XNESD40-32000	5- 24	AA		C	
XNESD60-50000	5- 29	AA		C	
XRESJ50-06000	5- 20	AA		C	
XUBSD30P08000	5- 5	AA		C	
XUBSD30P10000	2- 44	AC		C	
XWSSD40-10000	5- 23	AA		C	
XWSSD60-15000	5- 30	AA		C	
[0]					
00B1009882///	2- 45	AC		C	